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THE AEROPLANE—JAN. 5, 1927.

A Happy New Year.

THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by
C. G. Grey

Vol. XXXII. No. 1.

SIXPENCE WEEKLY.

[Registered at the G.P.O.
as a Newspaper.]

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JAN. 5

1927.

THE

AEROPLANE

Incorporating
Aeronautical Engineering

VOL. XXXII.

No. 1.

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ON PROGRESS IN 1926.

On the whole 1926 has been quite a useful year for British Aviation. There has not been anything approaching a boom, even of the littlest, which after all is probably a good thing. But there has been distinct progress in a number of ways which indicate that aviation is becoming a commercial proposition from every point of view.

This is really far the best form of progress. A boom is in fact a bad thing for progress though it may be very good for the pockets of a number of people. In a boom period manufacturers merely turn out anything that will sell, they do not bother about new designs which will tempt purchasers. They allow themselves to indulge in commercialism in its worst form.

To-day, manufacturers are beginning to realise that aircraft, both civil and warlike, can be sold if only the right types are produced. Which means that managing directors and designers have to collaborate in using their brains, whereas in a boom time it is only the sales managers and the works managers who have to think hard.

A boom in aviation, and a consequent boom in the manufacture of aircraft, will come in due time, and one hopes that then all of us who have stuck it out through the slump of the past five years will make our fortunes, and that we shall help a lot of newcomers to make fortunes also. But these next few years before the boom, although they may not make our fortunes for us, will be far more interesting than the boom itself. And this year, 1926, shows how interesting these next years are going to be.

PROGRESS AT THE AIR MINISTRY.

Take first of all the Air Ministry's dealings with the Royal Air Force. The expansion which was planned under the first administration of Sir Samuel Hoare and carried on so loyally by Lord Thomson in the Labour Government has been slowed down owing to the general hard-up-ness of the nation, but it has kept going. That is to say, the progress has been forwards and not backwards.

Gradually the old machines of wartime designs are dis-

appearing from the R.A.F. and squadrons are being equipped slowly but surely with new types. Also slowly but surely, the power of the self-appointed experts at the Air Ministry is being weakened and the practical men are getting the power to insist on having what they want.

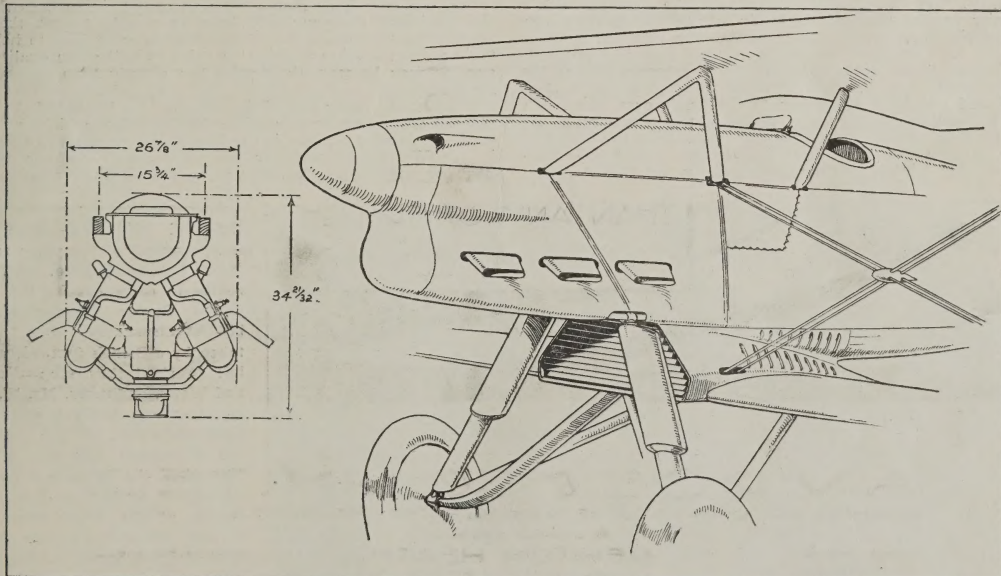
That means that instead of the Aircraft Industry having to build new types practically to the designs of the Air Ministry's experts there will be in the future every inducement for trade firms to design and construct new and improved types of their own. Which, in turn, means that instead of the most favoured firms getting the most orders, the orders will in the future go to the firms which produce the best aeroplanes and the best engines.

For this particular step in the evolution of a healthy industry British Aviation has primarily to thank Mr. C. R. Fairey, who deliberately broke through the bonds of the experts by building the Fairey Fox two years ago. But we also have to thank Sir Hugh Trenchard and Sir Geoffrey Salmond, who flouted all their experts by insisting on ordering a whole squadron of Foxes because, although according to the experts they were all wrong as aeroplanes, they did happen to be the type of machine which the active service pilots want. And the success of the Fox as an ordinary service aeroplane in a squadron, from every point of view, performance, ease of maintenance, ease of control, reliability, and everything else, has proved how utterly wrong the experts were.

ENGINEERING PROGRESS.

Mr. Fairey and the Fox did another great service to British Aviation. They stirred up the designers of aero engines.

When the announcement was made that a squadron of Foxes had been ordered with Curtiss D.12 engines, there was a terrific outcry about spending tens of thousands of pounds in America, when our own aero-engine manufacturers could very well do with more orders. Questions were asked in the House about it and all kinds of pressure



OUR NEW YEAR GIFT.—A suggestion to our design experts as to how they might give the R.A.F. faster fighters with a good view for the pilot. The sketch is based on the latest Boeing fighter with the inverted Packard engine, and a dimensioned view of the engine is given alongside.

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was brought to bear against the importation of American engines.

Again the Chief of the Air Staff, and the Air Member for Supply and Research stood firm and practically said to our aero-engine manufacturers that if they wanted to stop the placing of orders in America they had better produce something which had a better performance. And to-day we have air-cooled engines in process of design or experiment which ought to beat any existing water-cooled engine.

In 1926 we have seen the result of all this controversy. Quite a number of firms, instead of being content to sit still and build what the Air Ministry experts told them, have come out with new and original things of their own. And though they may not have got orders for them from the R.A.F. those firms have at any rate shown that they have competent designers who can produce aircraft which are considerably better than anything that could ever be built by them or anybody else when tied down to Air Ministry specifications.

WHAT THE TRADE HAS DONE IN 1926.

Perhaps the best way of understanding what the Aircraft Industry has done for the Royal Air Force and for aeronautical progress during 1926 will be to take the firms strictly alphabetically and merely mention some of the enterprising things they have done. There is no room here to go into details, and, writing from memory, one may forget some things which to the individual firm may seem to be more important than those which are actually mentioned.

In such an event one apologises for a defective memory or a lack of a proper sense of proportion. Nevertheless the catalogue will, one believes, show that our Aircraft Industry is becoming very active indeed.

A.D.C. AIRCRAFT LTD. have produced the Cirrus engines which have made our light aeroplanes a long way the best in the World. And they have produced in the Nimbus a modification of the good old reliable Siddeley Puma which is an exceptionally fine engine.

ARMSTRONG-WHITWORTH AIRCRAFT LTD. and ARMSTRONG-SIDDELEY MOTORS LTD. in combination have produced the Atlas, which was, one believes, designed and built quite free from the original Air Ministry specification and has proved itself good enough to be put into production as the replacement for the historic Bristol Fighter.

The Jaguar engine, though produced with Air Ministry approval and backing, has been developed by the firm's own enterprise, and one believes that one is right in saying that the Mongoose and Genet engines, each of which is a very fine example in its own class, were entirely private speculations of the firm's.

The Armstrong Argosy, though not exactly a speculative enterprise, was at any rate produced by the firm's own design staff to the specifications of Imperial Airways Ltd. and has proved itself to be one of the best passenger machines in the World.

A. V. ROE AND CO. LTD. have built the Avenger with a Napier engine, which is certainly among the World's very finest single seaters and is altogether the firm's own enterprise. Also the new Gosport Avro, which is just about as far ahead of its prototype, the World-famous 504K, as the 504K itself is in front of all other training machines, was designed and built altogether to the firm's own ideas.

Yet another Avro product which is the firm's very own is the Alpha engine, which was a success from the very first and ought, unless there is something very wrong somewhere in the Air Ministry, to supplant entirely the obsolete Mono

Gnome, which besides being unreliable causes an immense waste of time, in that pupils have to spend a lot of time learning all its tricks and all about its construction, although that knowledge is absolutely useless to them as soon as they get onto Service types of machines and engines, whereas the Alpha engine is a simple and typical stationary radial. To the firm's successes must be added the Ava bomber, which is one of the finest flying machines ever produced in this country.

THE BLACKBURN AEROPLANE AND MOTOR CO. LTD., though they did not build her as a private speculation, were at any rate enabled to give Major Rennie absolute liberty in the design of the Iris, which, with her three Rolls-Royce Condor engines, has the best performance of any flying boat in the World in her class. And the smaller Blackburns, such as the training seaplanes have been very good.

BOULTON AND PAUL LTD., though their all-steel experimental work has been financed by the Air Ministry, have developed Mr. North's distinctive methods of construction, and without Air Ministry assistance or interference have reached the stage where they can build an all-steel machine lighter and stronger and cheaper than a wooden one.

SIR WM. BEARDMORE AND SON LTD., though they have not produced aircraft or engines in quantities, have shown the right progressive spirit in their experiments with heavy oil aero engines and in the construction of a great all-metal machine which is now a-building. Also the two-seat fighter designed and constructed by Mr. Shackleton for the Latvian Government, quite as an independent affair, showed by its appearance and performance what good stuff our younger designers can produce if they are let alone and given encouragement.

THE BRISTOL AEROPLANE CO. LTD., thanks to Mr. Fedden's genius and thanks to the foresight of the directors in giving him an entirely free hand, have achieved the distinction of producing, in the Jupiter, an engine which is more widely used than any other one type of engine in the World.

Here is an outstanding example of what a British designer can do when given an absolutely clear run by his own firm and allowed to work in his own way. The firm must be reaping quite a useful financial reward with this progressive policy. And the types of Bristol engines which are at present in the experimental stage or in the design stage give promise of even greater successes to come, for two of them definitely fill a need.

CIVIL SUCCESSES.

THE DE HAVILLAND AIRCRAFT CO. LTD. naturally stand out as a shining example of private enterprise. Although their Moths are not exactly a 1926 product, this year has certainly seen the triumph of the Moth.

When the so-called light aeroplane comes into its own and popularises flying and enables us to get off those awful crowded roads of ours most of the credit for the revolution will be due to the De Havilland Moth.

One can only hope that when that happy time comes the De Havilland Company will have been able to get their manufacturing costs down so that they may be able to hold their present leading position on price as well as on quality, and, as may be seen, their price has already been dropped for 1927.

Right at the other end of the scale the De Havilland Company have scored heavily with the Hercules, which, with its three Jupiter engines is the fastest big passenger carrier in the World and certainly the handsomest. Though the machine was not a speculation as was the Moth, it was built



EMPIRE MAKERS.—Here are some of the personnel of the party sent by Aircraft Operating Co. Ltd. to South Africa to carry out for the Rhodesia Congo Border Concession Ltd. the biggest air survey contract yet undertaken by a British firm. Reading from left to right they are:—Messrs. R. and Watts, engineers, Mr. W. D. Cochrane, photographer, Major Charles Kenne Cochran-Patrick, Officer Commanding the expedition and first pilot, Mr. Hemming, the General Manager of Aircraft Operating Co. Ltd., who is in charge of the organisation at home, Colonel Crosthwaite, late Superintendent of Land Survey in India and now a Director of the Aircraft Operating Ltd., Flt. Lt. Blake, late R.A.F., second pilot, and Messrs. Latimer, Button and Millyard, engineers.

6

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to the requirements of Imperial Airways Ltd. and so is almost entirely free from Air Ministry influence.

THE FAIREY AVIATION CO. LTD., as one has mentioned before, are the great pioneers of independence. Not content with producing the Fox, Mr. Fairey produced this year the Firefly, which, unless one is very much mistaken, has the highest performance of any single-seat fighter in this country, and is probably the equal of anything in the United States or in France, and may even be better.

Apart from the Firefly, that good old stand-by the Fairey IID has been so improved in a modern manifestation that it also stands out as far ahead of anything in its class as do the Fox and Firefly.

Besides Fairey aircraft the Fairey Company is responsible for having introduced the Fairey-Reed airscrew, which has shocked the aerodynamic and mechanical experts of the Air Ministry just as badly as did the Fox. Everything possible has been done to crab the Reed airscrew, but on big and little aeroplanes alike it has upset all the theorists and has made good, thanks entirely to private enterprise.

THE GLOSTER AIRCRAFT CO. LTD. is another outstanding example of a firm that has fought an independent fight for years and has come into its own in 1926. The various Gloster single-seaters, wood and metal alike, water-cooled and air-cooled, have now definitely taken their place among the World's best aeroplanes.

They are the standard equipment of a number of R.A.F. squadrons, and new and improved versions are coming along to replace those who are already obsolescent. The way in which Mr. Martyn and Mr. Longden of the Gloster Company have fought all these years for recognition shows how pluck and enterprise combined with ability must come into its own in the end.

HANDLEY PAGE, LTD. has also made a very good showing in 1926. The Hyderabad bombers, though certainly produced under Air Ministry influence, owe a great deal to the firm's own staff. Work on the Handley Page Slots has gone forward steadily, and the little three-engined Hamlet, although an Air Ministry order, was built to the requirements of the Department of Civil Aviation and is the firm's design.

NEW PRINCIPLES.

THE HAWKER ENGINEERING CO. LTD. stands out among the great successes of the year. The Horsley bomber has, one believes, the best performance of any single-engined machine in its class. It was designed to meet an Air Ministry specification, but the design owes little to the Air Ministry.

The Hawker Hornbill, with the direct-drive Rolls-Royce Condor, was an entirely experimental machine, and it is claimed that it has the fastest climb of any British single-seater, and that it is an amazingly manoeuvrable machine.

But, from an entirely personal point of view, one regards as the firm's greatest achievement the system of steel tube construction which is used in the Heron and the new Hawfinch. Here is a system of construction which may very well be the saving of the R.A.F. when the Trade is called upon for mass production in time of war.

It has all the advantages of steel and wood construction combined, and the assembly of it is considerably simpler than that of a great many Meccano toys. There is the more in-

terest in it because it has been produced by such early pioneers of aviation as Mr. T. O. M. Sopwith and Mr. Fred Sigrist, and shows how long the pioneer spirit survives.

The success of the Hawker Cygnets at Lympne this year was merely a delayed triumph of 1924. But it shows what the firm could do if the chiefs chose to interest themselves in light aeroplanes.

D. NAPIER AND SON LTD. also stand out as examples of enterprise meeting its reward. The original Lion engine was purely a speculation. By continual development the Lion has held its place among the great aero-engines of the World, and it is now giving power in proportion to its weight which compares well with any water-cooled engine.

Those in charge of the firm have not been content to rest on the reputation of the Lion. The experiments made in producing an inverted Lion engine show that they are alive to the most modern trend of design, as initiated in the United States. And though the new two-row Napier has not yet appeared one gathers that it is showing great promise.

GEORGE PARNALL AND COMPANY is another example of the success of faith and perseverance. Mr. George Parnall, after having made money out of aircraft during the War, unlike many others equally fortunate, did not cut himself adrift from aircraft work, but deliberately started a new firm almost in the worst period of the post-war slump. With his clever designer, Mr. Bolas, he produced some of the earliest deck-landing machines.

The Panther and the Puffin and the Plover made the firm's reputation. And to-day work is going forward with further experimental deck-landing machines of interesting types.

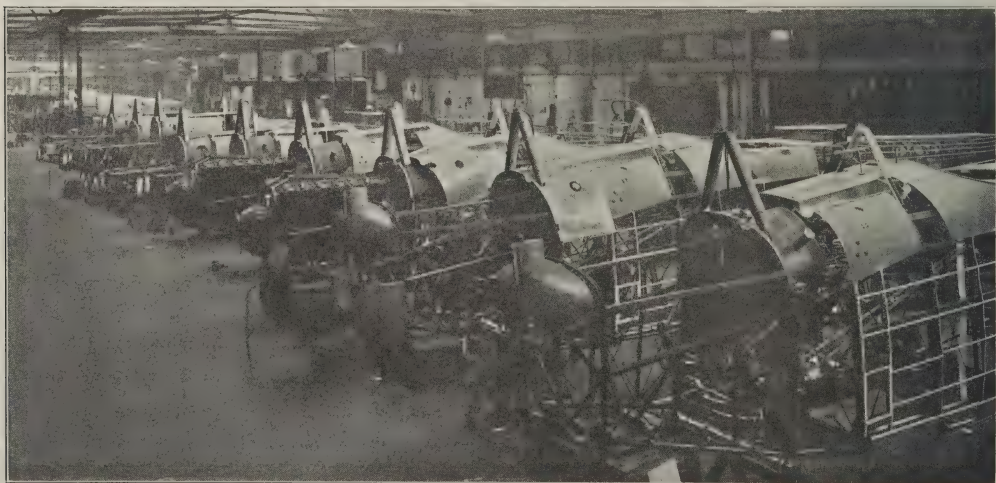
ROLLS-ROYCE LTD. can pride themselves on the fine show they have made during this year with the Condor. This engine is repeating the history of the old Falcons and Eagles. Each successive variant of it becomes lighter and more powerful while retaining that reliability which is synonymous with the name Rolls-Royce.

The direct-drive Condor, as experimented in the Hawker Hornbill, has justified itself as a high-speed engine and could quite well be developed into a racing engine. But one gathers that the most interesting Rolls-Royce product of 1926 is still hidden by a veil of secrecy.

It was to have been called the Falcon X, but common gossip in places where they aviate says that it is so far a departure from the famous Falcon that it is to be known merely as the F.10. All that is known about it is that those responsible for it are confident that it will advance still further the reputation already won by the Rolls-Royce series.

SHORT BROTHERS LTD., having been the pioneers of seaplanes in the earliest days of flying, as of all-metal aeroplanes in these later years, continue to show their faith in aqueous aviation, and during 1926 have come more to the front than ever in this class of work. Whether for air survey work, or for nearly-round-the-World flights, or for light hydro-aeroplanes, Short floats seem to be the only wear.

Not content with having made practically a corner in this line of business, Mr. Oswald Short has gone on with his big flying-boat work, and, though she has not yet been launched, 1926 has seen the construction of the Short Calcutta, which, unless human error has been more than usually erroneous,



PRODUCTION—Hawker Horsley high-performance day-bombers (Rolls-Royce Condor engines) being produced at the works of the Hawker Engineering Co. Ltd., Kingston-on-Thames. Which shows that a come-back does sometimes succeed. The chiefs of the firm are those pioneers of Aviation, Messrs. T. O. M. Sopwith and Fred Sigrist.



"Flight" Photo.

An Impression of the FAIREY "FOX" day bomber.

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is likely to beat all records as a passenger-carrying flying-boat. These successes show once again how perseverance and enterprise can overcome obstacles.

One believes that Short Brothers Ltd. are the only firm who possesses a special tank for experimenting with floats and hulls for aircraft. This tank was built at great expense some years ago entirely on Mr. Oswald Short's initiative and now in 1926 he is reaping his harvest from it. Furthermore, the Short duralumin airscrew promises success.

Mr. S. E. SAUNDERS, famous years ago as a designer of racing motor-boats, and more recently as the inventor of Consuta, has during 1926 produced the Valkyrie, a boat which is well worthy of the Saunders reputation. And a passenger-carrying boat, the Medina, entirely of Saunders' design, should very soon be launched.

THE SUPERMARINE AVIATION WORKS LTD., although they have always had a high reputation for building thoroughly good and reliable flying-boats, and did great service to British Aviation by winning the Schneider Trophy from Italy four years ago, have in 1926 reached a higher place among the aircraft firms of the World than it ever held before.

This rise in prestige has been due to the Southampton flying-boat, which has definitely placed its designer, Mr. Mitchell, among the leading aircraft designers of the World. The Southampton flying-boat is, one is practically certain, the only flying-boat as yet built which will maintain its height with only one of its two engines. Moreover, one is told, on the authority of a very accurate dealer in figures, that the Southampton actually carries a bigger useful load than is carried by any land-going machine, and carries it just about as fast. This is truly a remarkable achievement and proves conclusively the great possibilities which lie before flying-boats, in Civil Aviation as well as for war.

VICKERS LTD. have distinguished themselves during 1926 by producing an Anglicised version of the French Wibault all-metal single-seat fighter with a Bristol Jupiter engine, which is the first example of a high-performance all-metal fighter to be produced in this country. It is true that before they were built the machines were ordered by the Chilean Government, but they do distinctly come under the heading of private enterprise, in that their production was purely a commercial venture and was not financed or influenced in any way by our Air Ministry.

This transaction is worthy of note because it is along lines which had a good deal to do with improving the ships of the British Navy. Ships built by Vickers and other great shipbuilding firms for foreign Powers were so much better than those built in Admiralty dockyards, or built in private

yards to Admiralty design and under Admiralty supervision, that the Admiralty were forced to revise their own designs. Which shows how competition is good for trade.

In addition, during 1926, the old Vickers Vimys have to a great extent disappeared from the R.A.F. and have been replaced by Vickers Virginias and Victorias. Although one is against these enormous high-lift low-speed night-bombers, for purely strategic and tactical reasons, one must nevertheless admit that of their type nobody in the World has produced anything to beat the big Vickers machines.

Last but not least comes the WESTLAND AIRCRAFT WORKS. No firm has a higher reputation for workmanship or for care in detail design. But so far the Westland Company have been unfortunate in their private enterprises.

Yet the fine performance put up by the Westland Widgeon among the light aeroplanes at Lympne showed this year what the firm can do, with a free hand. And there is no doubt about the enterprise of the directors, for their outstanding action during 1926 was taking over the Hill Pterodactyl with the intention of producing larger types.

A GOOD RECORD.

That is not at all a bad record for a trade of such limited dimensions as that which makes, taking it all round, a very decent living out of aircraft. As one has pointed out on numerous occasions, we might have been very much further ahead than we are. But considering that practically until 1926 any firm which showed any enterprise or originality was promptly sat upon by Air Ministry experts who are afraid of losing their jobs if the trade becomes too enterprising and manages to prove, what is actually a fact, that it knows more than they do, the progress we have made is quite remarkable.

Later on one hopes to say a few words as to the directions in which progress may be made. So much then for what the trade has done. It does at any rate show that we are getting somewhere near Mr. Winston Churchill's ideal, expressed before the outbreak of war in 1914, of Air Power based on a free and independent and enterprising Aircraft Industry. But there is still much to be done.

As for the progress made in the R.A.F. itself during 1926, one proposes to leave the recording of this interesting phase of aviation to Mrs. C. M. McAlerly, who has for several years past specialised on the political economy of the Royal Air Force. Her article, which appears hereafter, gives a very clear and concise view of the lines along which the Air Force is developing. Therefore one will confine one's further remarks to Civil Aviation.—C. G. C.

(To be continued.)

THE ROYAL AIR FORCE IN 1926.

By C. M. McALERY.

HOME DEFENCE.

The year 1926 has shown a marked advance in the policy and achievements of the Royal Air Force.

The reorganisation of Home Defences took effect from Apr. 1, when a new Command, designated the Air Defences of Great Britain, and consisting of all units and formations of the Home Defence Force, came into existence under the command of Air Marshal Sir John Salmond, K.C.B., C.M.G., C.V.O., D.S.O., A.D.C.

This Command includes three subordinate Commands, the Wessex Bombing Area, under Air Vice-Marshal Sir John Steel, K.B.E., C.B., C.M.G., the Fighting Area under Air Vice-Marshal H. R. M. Brooke-Popham, C.B., C.M.G., D.S.O., A.F.C., and the Special Reserve and Auxiliary Air Force.

There are nine regular Squadrons in the Wessex Bombing Area and twelve Regular Squadrons in the Fighting Area. Five Auxiliary Squadrons have been formed and two Special Reserve Squadrons.

Apart from normal Service exercises, successful co-operation has been carried out during the year with the Anti-Aircraft Defence Units.

Parachutes have been made part of the standard equipment of all R.A.F. Units. Courses in packing and fitting para-

chutes have been held at various Air Force Stations and there has been frequent jumping-off practice at all Units. The crews and passengers in all Service aircraft are now equipped with parachutes for all flights. The standard parachute at present in use is the Irving, an American parachute which the Authorities consider to be more efficient and suitable for Service requirements than any other.

EMPIRE DEFENCE.

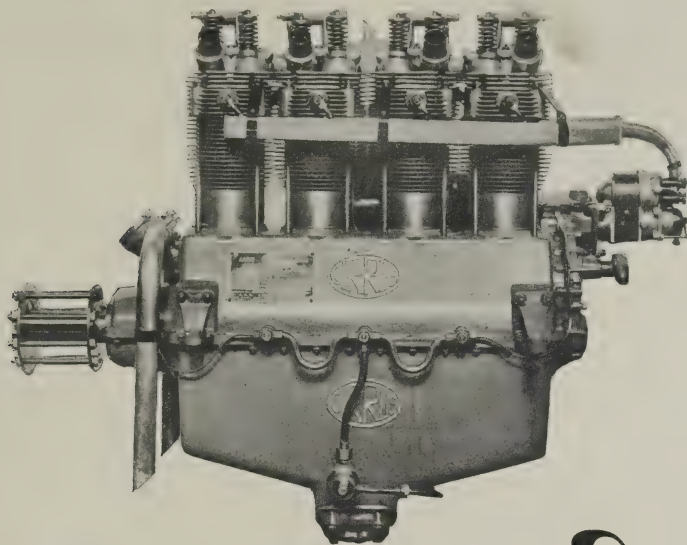
The important school of thought which considers that Home Defence is the least important part of the defences of the British Empire, may be considered as being responsible to a certain extent for the organisation by the Air Ministry of a number of Service Long-Distance Flights. The most important of these in the past year was that of the Cape Flight under Wing Cdr. C. W. H. Pulford.

The Flight consisted of Service personnel equipped with four Fairey IIID. machines of standard Service pattern with Napier engines. The Flight started from Cairo on Mar. 1 and returned to Cairo on May 27, one day ahead of the programme, after flying to the Cape, and back to England.

Another cruise was to various ports in the Mediterranean, and another round part of the English coast, both on Supermarine Southampton flying-boats with Napier engines.



PRODUCTION.—A batch of Gloucester Grebes (Jaguars) ready for delivery.



LONDON TO ?

The two Cirrus-Moth Machines
have reached Bandar Abbas to date.

The two CIRRUS-MOTH Light Aeroplanes piloted by Captain T. Neville Stack and Mr. B. T. M. S. Leete have reached Baghdad.

Both machines are fitted with A.D.C. "CIRRUS" Mark II aero engines and have accomplished a record flight for Light Aeroplanes (including a 250 mile sea crossing) and this again demonstrates the reliability of "CIRRUS" aero engines.

"CIRRUS" aero engines have been supplied to The British Air Ministry, The Six English Light Aeroplane Clubs, The Australian Air Force, The Australian Aero Clubs, The Irish Free State Aero Clubs, The De Havilland School of Flying, a number of British Aircraft Constructors, Foreign Governments and Private Owners, etc., etc.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Engineering & Aircraft

Another cruise was from Cairo to Aden and back on Vickers Victorias, with Napier engines.

These cruises have served to demonstrate the reliability of British aircraft and engines and the keenness and efficiency of R.A.F. personnel. They have also served as a very strong connecting link between the Royal Air Force and the Fighting Forces of the British Dominions, which have been visited in the course of these flights.

In their Resolutions on Air Defence and Imperial Air Communications at the Imperial Conference in October, the members of the Conference expressed themselves gratified by the decision of H.M. Government to carry out a series of experimental flights in which the Royal Air Force would link up with the Air Forces of South Africa and Australia.

The Secretary of State for Air, in a speech before the Royal United Service Institution on Dec. 8, said that the Air Staff was concentrating on mobility, a number of flights along the Cape-Cairo and Egypt-Australia routes would take place during the next few years as part of the normal training of the R.A.F.

Another important feature of the Government's policy during the past year has been the formation of a College of Imperial Defence. This College will open on Jan. 1, 1927, and will be commanded in turn by officers of the three Fighting Services. An officer of the R.A.F. has been appointed as an Instructor for the first course, and four officers of the R.A.F. will attend this course.

INTERNAL REORGANISATION.

The minor activities of the R.A.F. in 1926 have included a certain amount of "moving station," to accommodate the increasing demands of the Air Defences of Great Britain. At home the Central Flying School, which has been in existence since 1912, was removed from Upavon to Wittering, in Lincolnshire. The Boys' Wing at Cranwell was moved to Halton and made part of the School of Technical Training (Apprentices), at that station.

Two new Squadrons have been formed during the year and are both stationed at Henlow, Bedfordshire, where they are under the administration of the Fighting Area. They are No. 23 (Fighter) Squadron and No. 43 (Fighter) Squadron. Both Squadrons are equipped with Gloster Gamecocks (Bristol Jupiter engines).

The Auxiliary Air Force has been increased by one Squadron, No. 605 (County of Warwick), and the Special Reserve has also been increased by one Squadron, No. 503 (Bombing), stationed at Waddington.

Abroad, the R.A.F. in Palestine and Transjordan have been amalgamated into one Group under the Middle East Command. No. 1 (Fighter) Squadron has been disbanded in Iraq and will be re-formed in the Air Defences of Great Britain.

THE PERSONNEL.

The changes in the Higher Command during the year have included the return of Air Vice-Marshal Sir John Higgins from Iraq to the Department of Supply and Research, and the appointment of Air Vice-Marshal Sir Edward Ellington to command Iraq. Air Vice-Marshal Sir Geoffrey Salmond has replaced Sir Edward Ellington in India. Air Commodore E. R. Ludlow Hewitt has succeeded Air Vice-Marshal Brooke-Popham as Commandant of the Staff College, and Group Capt. L. W. B. Rees, V.C., has succeeded Air Commodore

E. L. Gerrard in command of Transjordan and Palestine. There has been a slight increase in the numbers of the personnel, if one may judge by the official figures given for officers. These show in the General Duties Branch an increase on 1925 of 1 Air Commodore, 2 Group Captains, 12 Wing Commanders, 5 Sq. Ldrs. 6 Flt. Lts., 131 Flg. Offs., and 42 Plt. Offs.

There is practically no change in the Stores Officers or in the Accountant Officers. In the Medical Branch there is a decrease of 6 Flt. Lts. and an increase of 3 Flg. Offs.

There is no decrease in the quality of the personnel. Air Vice-Marshal Brooke-Popham, in a lecture a few weeks ago, described the job of a Service pilot, and said that the temperament which produced this type of man was liable to make itself manifest in other directions. Although temperament, or "difference," to use the A.V.-M's own expression, may lead in times of peace to "conduct unbecoming to an officer and a gentleman," it is definitely not an excuse. To make it an excuse, even theoretically, is not quite fair to the majority of officers in the R.A.F., who, as pilots, are just as efficient as the small minority who suffer from "difference," and are frequently better officers.

Of the "Other Ranks," one hears nothing but praise. Almost without exception they are keen, smart and efficient. There has been no Tattoo at Wembley during the past year to illustrate the training of recruits to an enthusiastic public. But the detachment at the Royal Tournament and other detachments at various public functions, have won unstinted praise from experts by the smartness and precision of their drill and march discipline.

The number of skilled mechanics passing out of the training schools is increasing every year, and an example of the efficiency of an Air Force engineer was shown at Basrah in July, when, after the death of Mr. Elliott, Sjt. Ward, of the R.A.F., was lent to Mr. Cobham, and carried on successfully throughout the rest of the flight to Australia and back.

The success of the intensive technical training of Aircraft Apprentices at Halton has been proved this year by the award, at the R.A.F. Cadet College, Cranwell, of the Sword of Honour, the Groves Memorial Prize, the Fellows Memorial Prize, and the Air Ministry Prize, to a former Aircraft Apprentice from Halton.

SPORTS.

The high standard already set by the R.A.F. in various sports has been maintained during the past year. Although the R.A.F. was beaten by the Army and by the Navy at Rugby football they beat both the other Services at Association football. The Rugby and Association Inter-Unit Cup games showed a good standard of play.

At Hockey the R.A.F. beat the Navy and were beaten by the Army.

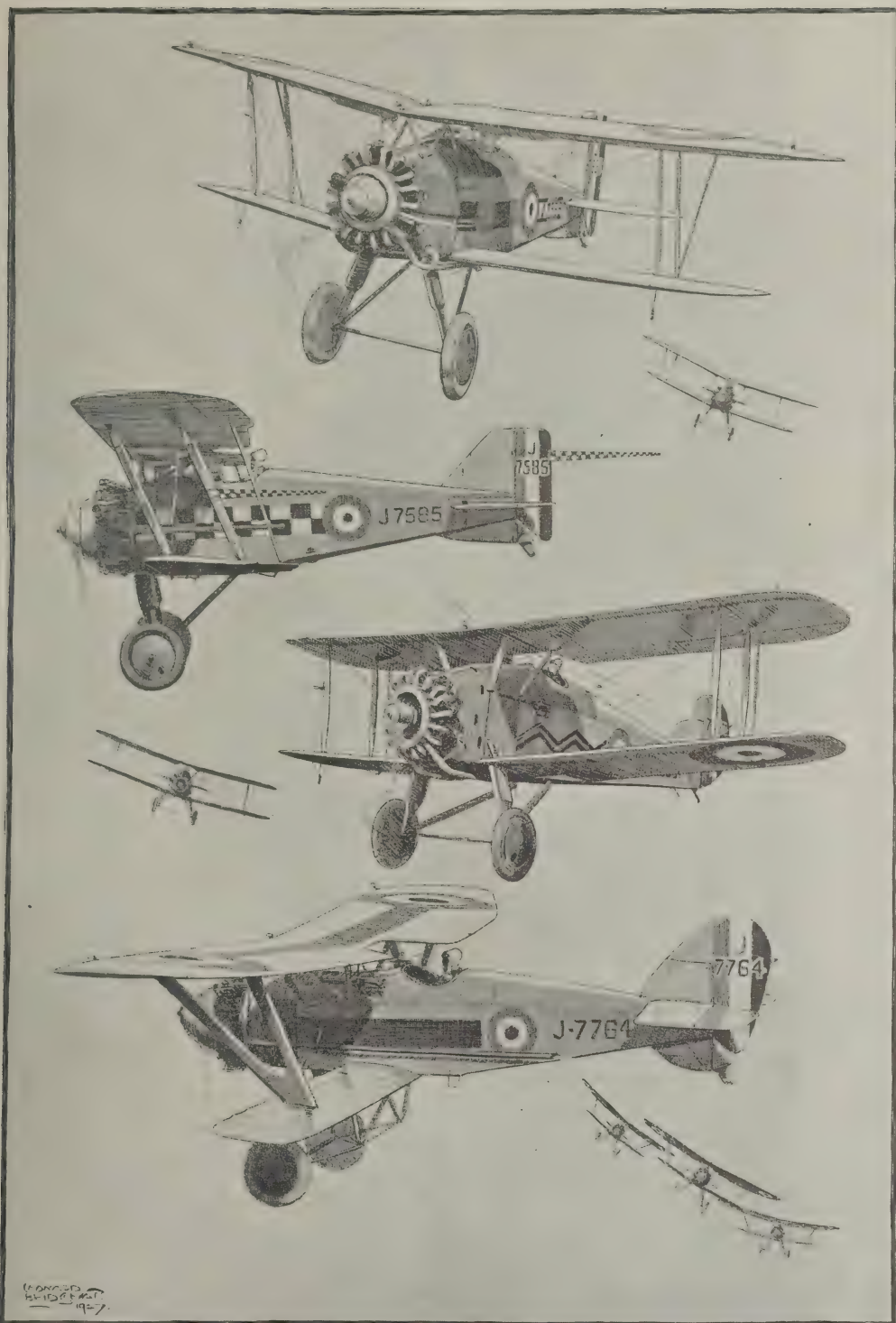
The Air Force gained second place in the Inter-Service Athletic Championships. New Air Force Records were put up at the Championship Meeting, 1926, for the One Mile, the Three Miles (running) and the Two Miles' Walk.

The Welter-weight contest in the Imperial Service Boxing Championships was won by an officer of the R.A.F.

The R.A.F. took second place in the Inter-Service Tennis Championship and the winner of the R.A.F. Golf Championship for six years in succession was the runner-up in the English Amateur Golf Championship in 1926.



THE MARCH PAST.—Sir Hugh Trenchard taking the salute of the passing-out Cadets at Cranwell.



THE AIR DEFENCES OF GREAT BRITAIN.—The squadrons of the Fighting Area, consisting of eleven single-seat Fighter Squadrons, are the first part of the R.A.F. to be completely re-equipped with post-war aircraft. The machines used (and shown from top to bottom of the picture) are:—The Gloster Gamecock (Jupiter), 23 and 24 Sqdns.; the Gloster Grebe (Jaguar), 19, 25, 29, 32 and 56 Sqdns.; the Hawker Woodcock (Jupiter), 3 and 17 Sqdns.; and the Armstrong-Whitworth Siskin (Jaguar), 41 and 111 Sqdns. The squadron markings shown on the machines are those of 23, 56, 17, and 41 Squadrons respectively.

THE ROYAL AIR FORCE.

The London Gazette.

Dec. 25.

GENERAL DUTIES BRANCH.—The following Plt. Offs. are promoted to the rank of Flt. Off.:—J. A. Tindall (July 18); E. D. MacL. Hopkins (July 26); G. B. Collet (Sept. 24); M. Brunton (Oct. 31); D. W. Gibson, G. N. Hoar (Nov. 14); W. J. Kelly (Nov. 30); B. B. Dowling, B. E. Moody, H. D. Guntton (Dec. 13).

Flt. Lt. M. H. Coote is restored to full pay from half-pay (Jan. 1, 1927); Flt. Off. H. C. Bobbett is placed on the retired list and is granted permission to retain the rank of Sq. Ldr. (Dec. 20).

The following are transferred to the Reserve:—CLASS A: Flt. Offs.—L. A. W. Deane (Dec. 28); R. L. Palmer, W. A. C. A. Yearsley (Dec. 29). CLASS B: Flt. Lt.—M. Ballard (Dec. 12).

Flt. Off. H. S. Davidson is dismissed the service by sentence of General Court-Martial (Dec. 22).

ACCOUNTANT BRANCH.—The following Plt. Offs. on probation are confirmed in rank and are promoted to the rank of Flt. Off. (Dec. 7); H. R. Withers, K. A. Jackman.

RESERVE OF AIR FORCE OFFICERS.—The following are confirmed in rank:—Flt. Offs.—H. C. Adams, M.C. (Dec. 8); M. D. Barber (Dec. 8); A. M. Dimant (Dec. 8); H. G. Travers, D.S.C. (Dec. 22). Plt. Off.—R. A. Kendrick (Dec. 7).

The following Flt. Offs. are transferred from Class A to Class C:—J. E. Taylor (May 29); R. T. Bark (Aug. 27).

Flt. Off. W. M. Long relinquishes his comm. on completion of service and is permitted to retain the rank of Flt. Lt. (Nov. 11).

The following Flt. Offs. relinquish their comms. on completion of service:—J. Edmunds (Dec. 5); F. M. Greenwood (Dec. 23); R. M. Jamison, D.F.C. (Dec. 28). Flt. Off. G. T. Witcombe relinquishes his comm. on account of ill-health, and is permitted to retain his rank (Dec. 29). The comm. of Plt. Off. on probation W. Scott is terminated on cessation of duty (Dec. 2).

Appointments.

Week ending Jan. 3, 1927.

GENERAL DUTIES BRANCH.—Air Vice-Marsals Sir J. F. A. Higgins, K.B.E., C.B., D.S.O., A.F.C., to R.A.F. Depot, Uxbridge, Supernumerary on transfer to Home Estab., 24/11, and to Air Ministry on appointment as Air Member for Supply and Research, 27/12. Sir W. G. H. Salmond, K.C.B., K.C.M.G., D.S.O., to H.Q., India, pending taking over command, 27/12.

Group Captains C. S. Burnett, C.B., C.B.E., D.S.O., to C.F.S., Wittering, to command, 24/11. W. R. Freeman, D.S.O., M.C., to Air Ministry, Directorate of Operations and Intelligence, on appointment as Deputy Director, 24/11.

Wing Commanders V. Gaskell-Blackburn, D.S.C., A.F.C., to R.A.F. Depot, Uxbridge, 29/12. C. C. Durston, to No. 9 Sqdn., Manston, to command, 29/12.

Squadron Leaders A. Lees, to No. 9 Sqdn., Manston, 5/1. A. N. Gallehawk, A.F.C., to No. 14 Sqdn., Palestine, 2/12. J. Everidge, M.C., to No. 2 Armoured Car Coy. and Repair Section, Palestine, 2/12.

Flight Lieutenants L. M. Elworthy, to No. 8 Sqdn., Iraq, instead of to No. 84 Sqdn. as previously notified, 7/12. C. R. Smythe, to No. 43 Sqdn., Tangmere, 24/12. M. L. Taylor, A.F.C., to No. 25 Sqdn., Hawkinge, 3/1. W. G. Meggett, M.C., to Fighting Area H.Q., Uxbridge, 16/12.

Flying Officers (Hon. Plt. Lt.) L. P. Winters, to H.Q., Iraq, 17/12. C. E. Nicholls, to R.A.F. Base, Calshot, 1/1. C. G. C. Sullivan, to No. 13 Sqdn., Andover, 15/12. S. F. Coleman, to No. 1 School of T.T. (Apprentices), Halton, 10/1. (Hon. Plt. Lt.) A. W. Bates, to R.A.F. Depot, Uxbridge, 10/1. A. P. K. Hattersley, to No. 24 Sqdn., Kenley, 10/1. F. W. Mundy, to No. 1 School of T.T. (Apprentices), Halton, 10/1. E. C. A. Wing, to No. 58 Sqdn., Worthy Down, 10/1.

MEDICAL BRANCH.—Squadron Leaders H. A. Hewat, M.B., D.T.M. and H., to R.A.F. Officers' Hospital, Uxbridge, 17/1. A. J. Brown, D.S.O., to R.A.F. Depot, Uxbridge, 27/1. E. A. Lumley, M.C., M.B., to School of T.T. (Men), Manston, 15/12. D. McLaren, M.B., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 12/12.

Flight Lieutenant B. F. Haythornwaite, M.B., B.A., to Basrah Com-

bined Hospital, Iraq, 4/12. Flying Officer M. D. Rawkins, M.B., B.S., to Research Laboratory and M.O.A. of I., on appointment to a S.S. Comd., 20/12.

STORES BRANCH.—Flight Lieutenant W. Thorne, to Aircraft Depot, Iraq, 1/12. Flying Officer J. J. Ironmonger, to R.A.F. Station, Donibristle, 19/12.

CHAPLAINS BRANCH.—The Revd. W. P. Hughes, to R.A.F. Depot, Egypt, 23/11.

The New Year Honours.

The New Year Honours List contains the following awards and promotions in the Royal Air Force:—

C.B. (MILITARY DIVISION).—Burnett, Group Capt. Charles Stuart, C.B.E., D.S.O., R.A.F.

AIR FORCE CROSS.—Flight Lieutenant Louis Massey Hilton, D.F.C.; Flight Lieutenant Matthew Crawford Dick.

AIR FORCE MEDAL.—83298 Serjeant (Pilot) Herbert Myles; 157216 Corporal Arthur East; 330341 Leading Aircraftsman Robert Edward Barton; 327535 Leading Aircraftsman Stanley George Wright.

The King has approved of the award of the Royal Red Cross, First Class, to Miss Mary Wilson Campbell, late Matron, Princess Mary's Royal Air Force Nursing Service, in recognition of the exceptional devotion and competency displayed by her in the nursing and care of the sick in Air Force Hospitals at home and in Iraq.

PROMOTIONS.

The following sentences have been promulgated in the cases GENERAL DUTIES BRANCH.—AIR CHIEF MARSHAL TO BE MARSHAL OF THE ROYAL AIR FORCE.—Sir Hugh Montague Trenchard, G.C.B., D.S.O. SQUADRON LEADERS TO BE WING COMMANDERS.—Evelyn Hayley Sparling, A.F.C.; Frederick Charles Victor Laws, O.B.E.; William John Ryan, C.B.E.

FLIGHT LIEUTENANTS TO BE SQUADRON LEADERS.—Richard Burnard Munday, D.S.C., A.F.C.; John Callaghan Brooke, D.S.C.; William Ewart Reason; George Raymond Albert Deacon, M.C.; Loudoun James Maclean, M.C.; Walter Henry Park, M.C., D.F.C.

FLYING OFFICERS TO BE FLIGHT LIEUTENANTS.—James Cornelius Stevens; Raymond de Lacy Stedman; Alan Jerrard, V.C.; Alexander Arthur Clarendon Hyde; James George Western, M.B.E.; David Stewart Allan; Samuel Lewis Hope Potter; Anthony Leach, M.C.; Leon Martin; Alfred Randles Wardle; Joseph Claude Andrews, M.B.E.; David Forgham Anderson, D.F.C.; Cyril Douglas Spiers; Edward Morion Drummond; George McCormack; Frederick Laurence Pearce; John Frank Clark; Herbert George Rowe; Lewin Bowring Duggan; Cyril Rapley; Robert Hugh McCoubrie Sheppard; Bernard Thomas Hood; Reginald Jones; John Watson Jean, D.S.M.; Robert Dawlas McEwan Hart; George Stewart Taylor; John Augustine Elliott; James Wright Lissett; Edward Arthur Blake, M.M.; Harold Alfred Haines, D.F.C.; Charles Henry Flinn; Thomas George Bird; David D'Arcy Alexander Greig, D.F.C.; Henry Frederick Villiamy Battle; Willy Douglas Adams; Edward Dayrell Handley Davies; John Richard Worley; Donald Malcolm Fleming; Fred Kirk; Stephen McKeever; Eric Ralph Carrington Hobson, D.F.C.; William Edmund Purdin; John Alexander McDonald; Barnabas Henry Cross Russell; Robert Ritchie Greenlaw, M.B.E.

STORES BRANCH.—WING COMMANDER TO BE GROUP CAPTAIN.—George Laing, O.B.E.

SQUADRON LEADERS TO BE WING COMMANDERS.—Rudall Woodliffe Thomas, O.B.E.; Ephraim William Havers.

FLIGHT LIEUTENANTS TO BE SQUADRON LEADERS.—William James King, D.C.M.; Edwin Maurice Cashmore; Frederick Petch, O.B.E.; Walter Thorne.

FLYING OFFICERS TO BE FLIGHT LIEUTENANTS.—Charles Joseph Polder; Harry Frederick Webb; Clarence Tremaine Davis; Herbert James Payne; Harry Bartlett Hawker; Wallis St. John Littlewood; John Roland Gardner; William Linker; Robert George Gore; George Baker.

ACCOUNTANT BRANCH.—SQUADRON LEADERS TO BE WING COMMANDERS.—Arthur Geoffrey Nevill Belfield; James Leask Robertson.

FLIGHT LIEUTENANT TO BE SQUADRON LEADER.—Cecil Cornelius James Croydon.

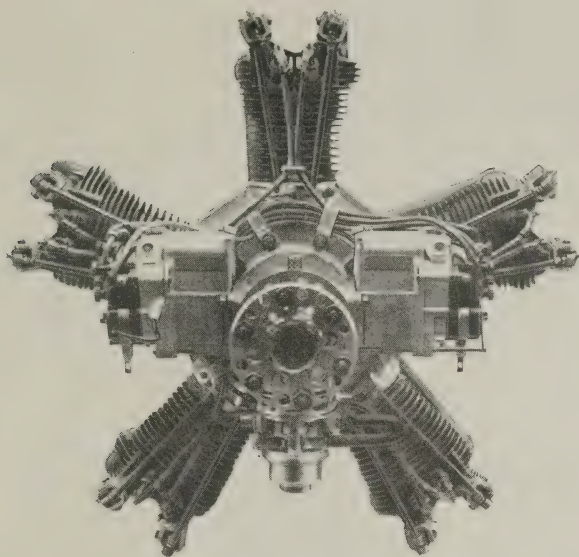
FLYING OFFICERS TO BE FLIGHT LIEUTENANTS.—John Freeman-Fowler; James Michie Adams; Edward Vernon Humphrey.

MEDICAL BRANCH.—SQUADRON LEADER TO BE WING COMMANDER.—Harold Burnett Porteous, M.B., D.P.H.

LEGAL BRANCH.—FLIGHT LIEUTENANT TO BE SQUADRON LEADER.—Donald Lane Ingpen.



AN ULSTER SQUADRON.—The Christmas Card of the Sergeants' Mess of No. 502 (Ulster) Bombing Squadron, Royal Air Force, Special Reserve. The Ulster Squadron was the first unit of the R.A.F. Special Reserve to be formed. It is stationed at Aldergrove, Co. Antrim, and is commanded by Wing Cdr. A. C. Wright, A.F.C. According to the current Air Force List the equipment of the Squadron is Avros and Vickers Vimys. A recruiting office for the Squadron has been opened in Belfast, where conditions and terms of service in the Special Reserve may be obtained.



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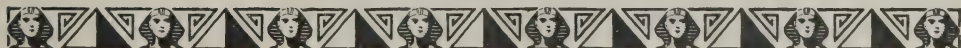
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17.



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

DIRECTOR OF MUSIC.—FLYING OFFICER (HON. FLIGHT LIEUTENANT) TO BE FLIGHT LIEUTENANT.—John Henry Amers, M.B.E.
 PRINCESS MARY'S ROYAL AIR FORCE NURSING SERVICE.—ACTING MATRONS TO MATRONS.—Senior Sister Miss Muriel Beatrice Botwood; Sister Miss Katherine Christie Watt.
 SENIOR SISTERS TO ACTING MATRONS.—Miss Maggie Moddrell; Miss Emily Mathieson Blair.

SISTER TO ACTING SENIOR SISTER.—Miss Winifred Eveline Molcsworth.

The Promotion of the Royal Air Force.

By the promotion of Sir Hugh Trenchard to the rank of Marshal of the Royal Air Force a step in promotion is given to the Air Force as a whole.

While the Chief of the Air Staff was Air Chief Marshal, he held a rank equivalent to that of an Admiral in the Navy or a General in the Army. Consequently the Force under his command was ranked in importance with an Army in the field or a Fleet at sea. Those who are old enough to remember the War 1914-18 in detail, know that there were five Armies in the field on the French Front alone, each under the command of a full General, without counting the side shows in the Balkans, Egypt, Iraq, India and Africa—not to mention several Fleets, in various harbours.

At the time of the Armistice in 1918 the highest rank in the Air Force was that of Major-General. Sir Hugh Trenchard commanding the Independent Force, R.A.F., and Sir John Salmond commanding the R.A.F. in the Field, both held that rank, and Sir Frederick Sykes held the same rank as Chief of the Air Staff at home, all three being equivalent to divisional commanders in the Army.

In August, 1919, Sir Hugh Trenchard was promoted to Air Marshal as Chief of the Air Staff, thus making the Air Force relatively as important as an Army Corps. On April 1, 1922, he was promoted to Air Chief Marshal, thus raising the Air Force to the relative importance of an Army, and in June, 1923, Sir John Salmond, then commanding in Iraq, was promoted to Air Marshal, giving him equivalent rank with a Lieutenant-General in the Army and so raising his command to the relative importance of an Army Corps.

Now that the Chief of the Air Staff is promoted to Marshal of the Royal Air Force he ranks with but after an Admiral of the Fleet, or a Field-Marshal in the Army. Consequently the Air Force itself rises to such importance that it can now be expanded into several different commands each of the importance of a Fleet in being or an Army in the field. In this connection it is well to note that the Air Defences of Great Britain, commanded by Air Marshal Sir John Salmond, are themselves of the importance of an Army Corps.

Thus it may be seen that in honouring the distinguished Chief of the Air Staff His Majesty the King has honoured the Royal Air Force as a whole.—C. G. G.

Group Capt. C. S. Burnett served with the Highland Light Infantry in the South African War, 1900-1901, and in Northern Nigeria, 1904-1905. In the War, 1914-18, he transferred to the R.F.C., having taken his R.Ae.C. certificate on a Maurice Farman biplane at Upavon in November, 1914.

He was promoted to the rank of Captain in October, 1915. He was awarded the D.S.O. in 1918 and the C.B.E. in 1919 for distinguished services in Egypt. He was also awarded the Order of the Nile, 3rd Class, in November, 1919.

In 1921 he was in command of No. 29 Group, R.A.F., Donibristle, with the rank of Wing Commander. He was promoted to the rank of Group Capt. in June, 1921, and in February, 1923, he became Deputy Director of Operations and Intelligence at the Air Ministry.

Miss Mary Wilson Campbell is Matron at the R.A.F. Hospital, Halton. In 1923 and 1924 she was Matron of the R.A.F. Hospital at Baghdad.

Flight Lieutenant L. M. Hilton, D.F.C., A.F.C., is commanding No. 421 (Fleet Spotter) Flight, R.A.F., in H.M.S. *Furious*. He was appointed to No. 421 Flight from the Marine Aircraft Experimental Establishment at Felixstowe. He was awarded the D.F.C. in December, 1919, for distinguished services in North Russia.

Flight Lieutenant M. C. Dick, A.F.C., was posted to No. 8 (Bombing) Squadron, Hinaidi, Iraq, in September, 1922, from No. 100 Squadron, Spittlegate. He was promoted to the rank of Flight Lieutenant in July, 1925. He served with distinction in the R.A.F. during the War, 1914-18.

A Fatal Accident.

The Air Ministry regrets to announce that Flg. Off. (Hon. Flt. Lt.) Alastair Neil Macneal, the pilot of the aircraft, and No. 362102 L.A.C. Cyril Arthur Overy, died of injuries on December 29 as the result of an accident at Ambala, India, to a Bristol Fighter of No. 28 Sqn., Ambala, on that day.

The Duxford Court-Martial.

The following sentences have been promulgated in the cases of the five officers of the R.A.F. stationed at Duxford who were charged before a General Court-Martial with irregularities in connection with the officers' mess and sergeants' mess accounts at the station:

Flg. Off. Harold Scott-Davidson.—To be dismissed the Service.
 Flt. Lt. Arthur Clunie Randall, D.F.C.—To be dismissed the Service.
 Flt. Lt. Cyril Richard Smythe.—Severe reprimand and forfeiture of 104 places in the gradation list of the R.A.F.
 Flt. Lt. Philippe André de Fontenay, D.F.C.—To be cashiered.
 Plt. Off. James Edward Welman.—Forfeiture of seniority as if he bore date Aug. 10, 1926, and to be severely reprimanded.

Boxing at Hinaidi.

The Novices' Boxing Championships (Iraq) were held at Hinaidi on Nov. 26 and 27.

Group Capt. C. T. Maclean, D.S.O., M.C., Chairman of the R.A.F. Boxing Association (Iraq), was in the Chair and afterwards presented the prizes.

The final team placings were as follows:—
 No. 6 Armoured Car Co., 38 points; "D" Depot Squadron, 21; No. 8 (B) Squadron, 15; Stores Depot, Basrah, 16; No. 70 (B) Squadron, 15; "A" Depot Squadron, 15; No. 4 Armoured Car Co., 14; No. 5 Armoured Car Co., 12; No. 84 (B) Squadron, 11; No. 30 (B) Squadron, 10; "C" Depot Squadron, 6; No. 6 (A-C) Squadron, 6; No. 55 (B) Squadron, 5; R.A.F. British Hospital, 3; Air Headquarters, 2.

The results of the finals were:—

Fly-weights.—After a stirring contest AC. Parkes was awarded a points victory over AC. Stickels.

Bantam-weights.—AC. Bann damaged his hand in the second round and retired in favour of AC. Rodger.

Feather-weights.—De Clouet was forced to retire at the end of the first round owing to an injury to his hand, and the fight was awarded to Donovan.

Light-weights.—Clark proved himself the better man and after some hard, clean hitting Sunter retired during the second round.

Welter-weights.—The final was a well-contested bout, both men showing good styles for novices. Willoughby floored his man in the second, but Crossman fought back gamely. The fight went the full distance and Willoughby was awarded the verdict on points.

Middle-weights.—In spite of the hard fight he had fought earlier in the evening, Miller put up an excellent show against Regan, who was awarded the decision on points.

Light-Heavy-weights.—L.A.C. Tipping scored an easy victory over L.A.C. Fallon, the latter retiring with a damaged thumb at the end of the first round.

Heavy-weights.—L.A.C. Fletcher proved too good for AC. Rayment and put his man down for the count in the first round.

In a special four-round contest L.A.C. Campbell, "D" Squadron, beat L.A.C. Belcher, of Stores Depot, Basrah, on points. This was a well fought contest and received a fine ovation.

In a special six-round contest AC.I. Stockwell, "B" Depot Squadron, beat L.A.C. Codling, No. 84 (B) Squadron, Shaibah, the Inter-Service Feather-weight Champion in Iraq. The vigorous style of both of

THE R.A.F. (HENLOW) SWIMMING AND WATER-POLO TEAM.—The Henlow Team won both the Inter-Unit events and two of the four individual championships at the first annual meeting of the R.A.F. Swimming Association. In view of the fact that Henlow is the only large R.A.F. Station where no swimming facilities are available this is a very fine performance.

The photograph shows, from left to right: Back row, Flt. Lt. S. M. Park, L.A.C. Withers, Flg. Off. F. Jezzard, M.B.E. (O. i/c. Aquatic Sports), L.A.C. Castle (Hon. Sec.), L.A.C. Hopkins (R.A.F. 50 yds. Champion), Cpl. McGinn (R.A.F. Plunging Champion). Middle row, Cpl. Grew (Captain), L.A.C. Nicholson. Front row, L.A.C. Stobart, L.A.C. Andrews.





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THE IRAQ CHAMPION WATER-POLO TEAM.—From left to right, standing:—Flt. Lt. G. R. Ashton, L.A.C. H. Eley, Sgt. R. Hammond, Flg. Off. Sinclair. Sitting:—L.A.C. S. Withers, L.A.C. E. Biggs, L.A.C. H. Weaver, A.C.I. A. Williams, L.A.C. W. Goldsmith.

these Airmen is worthy of special mention. Their ringcraft and footwork in this contest was well worth a special journey to see. The fight went the whole six rounds, Stockwell gaining the decision on points.

The most spectacular knock-out of the whole competition was witnessed in the last fight of all, this being a specially arranged six-round Inter-Services contest between Pte. Jackson, 2nd Batta. The King's Regt., Inter-Services Welter-weight Champion (Iraq), and Cpl. Wilson, No. 30 (B) Squadron, Inter-Services Middle-weight Champion (Iraq). The fight began vigorously, both hitting hard and defending well, but a sensation was caused early in the second round when Wilson dropped his guard. Jackson took advantage and right hooked to the jaw, flooring Wilson for the count.

"L'AFFAIRE STRANDERS."

Although the *affaire Stranders* is not likely to assume in France the importance of the *affaire Dreyfus* (which will be within the memory of some of the older readers of this paper) seeing that Dreyfus was a French officer and Vivian Stranders was only a temporary officer in the Royal Air Force, nevertheless his arrest on a charge of espionage in France has stirred up quite a good deal of international interest. Therefore one feels justified in saying something about the case in this paper.

As has been stated in various daily papers Captain Stranders was a member of the British Section of the *Commission Aéronautique Inter-Alliée*, to give it the French name by which it was always known, thanks to the predominating influence of the French on the Commission. Ostensibly the function of that Commission was to see that the provisions of the Treaty of Versailles were observed by the German Government, as concerned the reduction of German military armament.

Actually, under French influence, the Commission took upon itself the job of destroying everything in Germany which could even remotely be connected with the production of war material. And if the French Section of the Commission had had its way practically every industrial concern of any kind in Germany would have had its buildings and plant utterly destroyed so as to ruin Germany's commerce as well as her military power. The object of the French seemed to be the ruin of the German people rather than the disarming of Germany's military power.

The result was that, with the Englishman's constitutional inclination to sympathise with the under-dog, many members of the English Section of the Commission instinctively found themselves in sympathy with the Germans, and with the usual English love of fair play, spent more of their time protecting German industries than in destroying German armament.

Vivian Stranders, who spoke German like a native, and must have spent quite a good deal of time in Germany before the War, found himself drawn more and more towards German friends whom he met in the course of his duty. And before he left the R.A.F. he had arranged to enter into business relationship with various German firms.

As soon as he left the Service he established himself in business in Düsseldorf and paid several visits to this country, where, like most people who want to know things about the British Aircraft Industry, he frequently visited the office of *THE AEROPLANE* to get the names and addresses of the people with whom he wished to do business. In that way one came to know quite a good deal about his affairs.

At first he was dealing in British motor-cycles. After-

wards he moved to Berlin. About a year or so ago he was endeavouring to obtain for certain German firms Bristol-built Jupiter engines for the great German Seaplane Competition at Warnemünde in which, as reported at the time in *THE AEROPLANE*, the Jupiter-engined Heinkel seaplane did extremely well.

The difficulty the German competitors had in getting Jupiter engines arose from the fact that the Gnome-Rhône Company had some time before acquired the manufacturing rights for the Jupiter engine for the whole of Europe—with the exception of Scandinavia. And consequently their rights covered Germany. Naturally the Germans did not want to buy Jupiter engines from France, so certain accredited representatives of German firms came to England, accompanied by Captain Stranders as interpreter, to try and arrange for the delivery of Bristol-built engines by way of Sweden.

Naturally the Bristol people were loyal to their agreement with the French firm.

The last time one saw Captain Stranders, a few months ago, he told one quite openly that he was working in alliance with the German Aircraft Industry and was at that time endeavouring to negotiate with the Gnome-Rhône Company the manufacturing rights of the Jupiter engine in Germany on behalf of a very important German firm. This firm, like most German aircraft firms, had the official approval, if not the financial backing, of the German Government. Which would be quite enough in the eyes of the French to make Captain Stranders into a German Secret Service Agent.

Now what makes one suspicious about the whole of this spy business is that the Gnome-Rhône Company are up against terrifically strong political influences in France. They themselves, and their financial chief, M. Lazare Weiler, who was one of the pioneer financiers of French aviation despite his Germanic name, have powerful political influences of their own, which, coupled with the fact that the Jupiter has proved itself to be the World's premier high-powered radial engine, have secured for them the biggest orders yet given in France for aero-engines for the French Army and the French Navy alike.

Naturally this brilliant success of the Gnome-Rhône-Jupiter has created frantic jealousy in the French Aircraft Industry. As one mentioned at the time of the Paris Aero Show, various French papers have published virulent articles on what they are pleased to call the "*Scandale Jupiter*." And they have cried out against what they allege to be British domination of the French Aviation Services, just because the Gnome-Rhône Company pay a small royalty on each engine to the Bristol Company, the total amount being a post-war liability which can only be a minute decimal of the War Debt which France owes us and does not attempt to pay. £623,000,000 is the sum owing to us.

In these French feuds any trick is good enough or bad enough to use in scoring off a competitor. And one would not be at all surprised to find that Captain Stranders has been arrested in the course of a perfectly legitimate negotiation between his German clients and the Gnome-Rhône Company, on a purely trumped-up charge of espionage procured by the political influence of the Gnome-Rhône Company's enemies.

One is disposed towards this belief by a very curious thing which occurred when the Gnome-Rhône Company first took over the Continental rights for the Jupiter. A competent English draughtsman of good social standing was sent to Paris to check over the Gnome-Rhône drawings and co-ordinate them with the original Jupiter drawings, so as to make quite sure that no errors could creep into the French design which might cause failure in their first engines. How well he did his work is shown by the fact that the earliest French Jupiters proved brilliantly successful.

Before that draughtsman had quite finished his job, he was arrested at some perfectly harmless place of amusement in Paris, was charged with some absurd crime against the Civil law, of which he was not only innocent but obviously incapable, to the knowledge of his most intimate friends, and, in spite of quite an able defence, he was convicted on the evidence of a couple of gendarmes and had to do twelve months in gaol. It is almost needless to say that he was at once reinstated in his job by his English employers, on his liberation.

While holding no personal brief whatever for Captain Stranders, and knowing only so much about him as one could gather from his calls at this office, and from the way in which he was obviously trusted by men of good standing in the German Aircraft Industry, one would not be in the least surprised if the *affaire Stranders* were in fact a *scandale Stranders* closely allied politically to the *scandale Jupiter*. And in saying this one expressly desires it to be understood that the affair has nothing whatever to do with the Bristol Aeroplane Company, because Captain Stranders's dealings were entirely between his German clients and the Gnome-Rhône Company.—C. G. G.

GLOSTER

WINNERS OF THE AERIAL DERBY 1921-22-23.
HOLDERS OF BRITISH SPEED RECORD 1921-22-23.
RECORD CLIMB OF 19,500 FT. IN 11 MINS. 34 SECS.
GLOSTER III. FASTEST BRITISH SEAPLANE OVER
100 AND 200 KILOS.

(Machines in all above events fitted with
Napier "Lion" Engines).



"Flight" photograph

GLOSTER
"AIRCRAFT CO. LTD."
CHELTENHAM & BROCKWORTH
GLOS. ENGLAND

IMPRESSIONS OF THE PARIS SHOW.

BY LEONARD BRIDGMAN.

Having survived ten days of the *Salon d'Aviation* (why has the name been changed from *Salon de l'Aéronautique* to the above title?), some of the wonderful city surrounding the Grand Palais, together with a surfeit of veal, central heating, fog, cheap taxis and expensive cigarettes, one is prompted by purely humanitarian motives to issue a grave warning.

To all artists, born, yet to be born, made, or inspired who with the much-vaunted coming boom in Aviation may consider entering the field of aeronautic Art, I say,—avoid the interior of the Grand Palais during an aeronautical exhibition like the plague.

That those few hardy souls who braved the rigours of a Winter Channel and an all-the-year-round French railway to make drawings of the exhibited aircraft for the glory of the French Aeronautical Industry should have escaped from Paris without having been thrown into the Bastille or laid to rest in the Morgue is a matter for self-congratulation. That the Channel at each crossing should have been wrapt in flatness is neither here nor there; we all set out with our Mothersill's, and our *Daily Mail* duly signed, prepared for the worst.

Instead of Paris serving as a city of tranquillity and rest, no sooner had we produced our sketch-books and sucked our pencil stubs when *agents de police, gardiens*, and French civilians employed by the various exhibitors rose in protest. Drawings were torn up and confiscated, and work was hindered to quite an unnecessary extent.

Most of the trouble arose out of an obscure rule which stipulated that sketches could only be made with the written permission of the exhibitors. On the majority of stands verbal permission was readily given but the existence of that silly rule, known apparently only to certain officious individuals possessing more verbosity than authority, was the cause of much interruption, and the spilling of considerable quantities of over-heated near-French.

One gathered that the rule in question is to be eliminated in time for the next Aero Show. Incidentally it may be mentioned that THE AEROPLANE artist suffered nothing worse than one or two minor reverses in combat with the exhibition sleuths, points being lost on bad footwork and the inability to frame sentences involving the use of more than two irregular verbs at once.

As regards the Show in general it has been stated that the 1926 exhibition showed little progress over that of 1924. This sweeping statement is not in the least derogatory.

Hitherto the Paris Show has generally been noteworthy for the presence of a large number of freak "prototypes," which even on the calmest day and with a super-man as pilot could never be induced to leave the ground. It may be that the total absence of anything freakish this year has caused disappointment among those who delight in poking their fingers through the fabric and rapping their knuckles on the metal covering and generally behaving as though they were examining the exhibits of a road-side circus fair.

The 1926 show is notable in that it contains a very large proportion of highly practical aircraft and engines, many of which have put up consistently outstanding performances in the way of World's Records and long-distance flights. Nevertheless one rather bright remark was made by a well-known pilot which is worth recording. On being asked "Have you seen anything interesting in the Show?" he replied, "Yes, but she has just gone out."

As usual one obtained entrance to the Grand Palais on the evening before the opening by means of bribery. The interior of the building resembled chaos, with aircraft being erected on half-built stands, and with the pathways six inches deep in dry dust, congested with motor-lorries, horse-lorries, wildly gesticulating *ouvriers*, photographers letting off large quantities of flash powder, and other phenomena.

How exactly any sort of order is ever extracted from this night-before-the-next-morning muddle passes understanding. However, it always is extracted, and by nine o'clock on the following morning everything looked very pretty indeed. Coconut matting had been laid over all pathways, gas heating stoves installed, ferns, rugs, carpets, office furniture, and last but not least aeroplanes, engines and accessories had been laid out in artistic, but not always appropriate, attitudes.

One or two absentees were conspicuous by their absence. The Armstrong-Whitworth Ajax had been held up because its cases would not pass through or under the French over-bridges or tunnels, which seems to indicate that French land transport is not air-minded, otherwise they might have removed all obstacles by the use of a little high explosive or a few Parisian taxis complete with drivers.

The Fokker company had presumably investigated such problems, and finally decided to fly their two machines to Paris, a very sound idea, but one followed by no other exhibitor.

Another late arrival was the Bernard 12C.1 all-metal single-seat fighter, fitted with a 420 h.p. Gnome-Rhône Jupiter engine. This machine had come direct from Villacoublay where it has been under test by the French Military Authorities for the past six months or so. Incidentally the Bernard company ever since it became the S.I.M.B. or *Société Industrielle des Métaux et du Bois* has shown something startling or amusing.

At the last Show they showed the speed-record monoplane. This year they showed the 15C.1, in addition to the 12C.1 which is chiefly remarkable for having ostensibly a 500 h.p. Hispano-Suiza engine which exhausts through two small exhaust stubs, of about 2 in. in diameter, one on either side. In order that the secret features of this novelty may not be disclosed the entire engine cowling was nailed up with tin-tacks and painted over.

One has a faint recollection of a still earlier example of this on the Bernard stand, three exhibitions ago, when they showed a low-wing all-metal monoplane with all control surfaces nailed up and all control levers eliminated in an effort to show a perfectly clean exterior. All of which is pretty but unconvincing.

The Villiers company, an interesting newcomer to the French Industry, showed two very nice naval aircraft and a French-speaking wireless set complete with "high-speaker" of very bad quality. Whether this was a by-product of the Villiers company, or merely installed for the same purpose as that for which the showman hits a big drum—namely to attract custom to his boxing booth—remains to be seen. Anyway from the point of view of music one would have preferred a big drum.

The F.B.A.-Schreck and the Loire-Gourdon-Lescurre stands alongside one another were presumably, judging from the colour of two of their machines, the official headquarters of the Mustard Club. Indeed this illusion was heightened one morning by the presence, on the Schreck stand, of Lord Bacon as depicted in the advertisements, complete with monocle. Later this was found to be incorrect, the individual turning out to be our energetic Director of Civil Aviation.

Opposite the F.B.A. stand was the amazing Besson three-engined flying-boat, which has already been dealt with in this paper. Several Air Ministry officials and others had to receive medical attention after viewing this exhibit.

Its position, immediately adjacent to the *Salon de Thé*, was well chosen, as one had merely to mount the steps to obtain a corpse-reviver; and a glance over the balcony at the top of the machine was sufficient to necessitate a repeat order. This machine was the central object in the drama of the torn-up drawings already mentioned, a fact that seemed to indicate a certain pricking of the conscience on the part of the exhibitor.

On the stand of the *Aéronautique Maritime*, immediately under the *Salon de Thé*, was shown, in addition to three aircraft, a Farman-Jupiter-Goliath torpedo-seaplane, a C.A.M.S.37 fleet-spotter flying-boat and the little Besson M.B.35 monoplane seaplane for stowage on submarines, some very interesting models and aircraft paintings, the latter by the official French Naval artist, M. Jean Louis Pagnaud.

The largest and most interesting model was that of the French aircraft-carrier *Béarn*, now approaching completion. The *Béarn* was originally one of the six Dreadnought battleships of the *Normandie* class, laid down in 1913, but whose construction was interrupted by the War 1914-18, and subsequently cancelled by the Washington Treaty.

The *Béarn* was sufficiently far advanced to warrant its retention, and plans were prepared for her conversion into an aircraft-carrier. She was launched in 1920 and should be completed early next year.

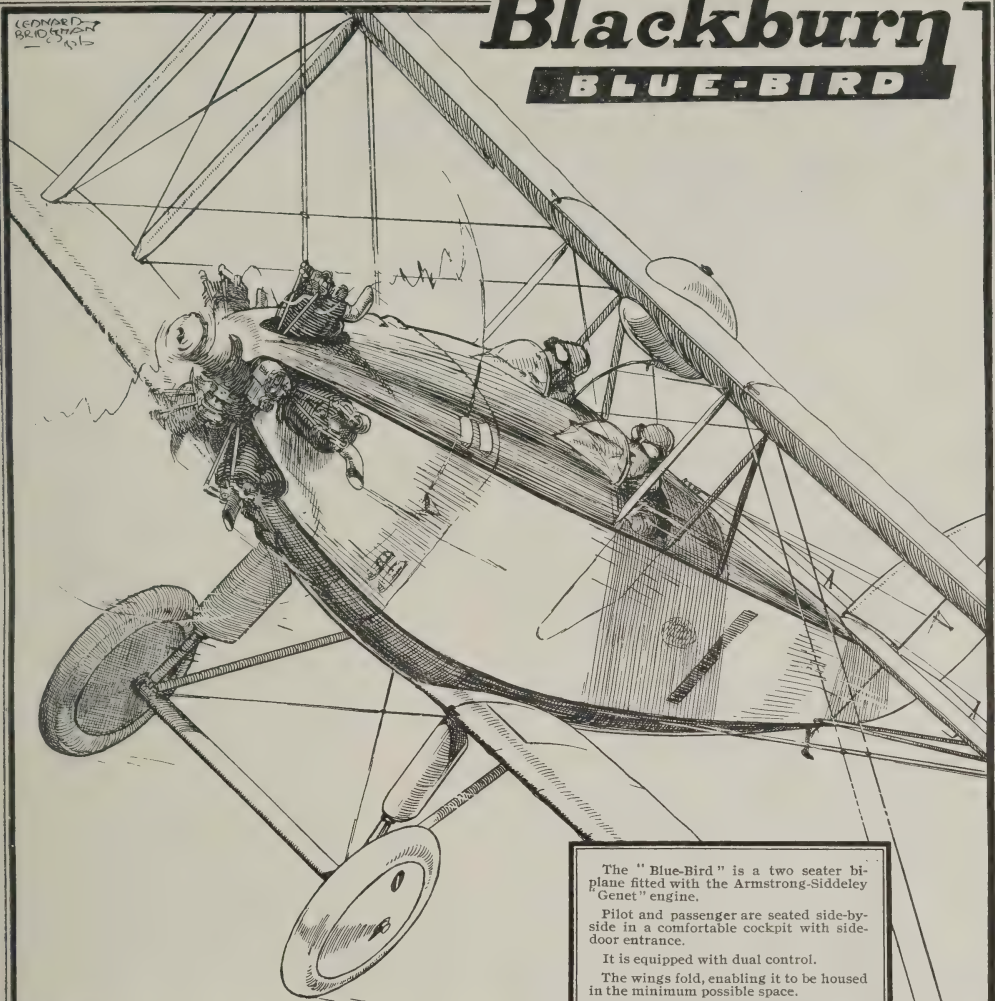
In general appearance she resembles H.M.S. *Hermes*, but is considerably larger. The flying-off-and-on deck covers the entire ship, and measures 588 ft. x 85 ft. On the port side are situated the single funnel, signalling mast and bridge superstructure. As the whole is built onto the side of the vessel it therefore does not occupy any of the deck-space. Smoke can be by-passed so as to come out below the level of the deck when necessary.

On the starboard side are two wireless masts and these are arranged to fold over outwardly to a horizontal position. The *Béarn* is intended to carry only wheeled aircraft of the "Marin" class, and amphibian flying-boats. Her maximum speed is estimated to be 24 knots.

Behind the model of the *Béarn* was shown a model of the compressed-air catapult designed and built by the Chantiers et Ateliers de St. Nazaire-Penhoët. This apparatus follows the lines of the earlier U.S. Navy type catapults, and consists of an orientable run-way 65 feet long, along which runs a carriage carrying the aircraft. Driven by compressed air

Blackburn

BLUE-BIRD



The "Blue-Bird" is a two seater bi-plane fitted with the Armstrong-Siddeley "Genet" engine.

Pilot and passenger are seated side-by-side in a comfortable cockpit with side-door entrance.

It is equipped with dual control.

The wings fold, enabling it to be housed in the minimum possible space.

Either for the private owner or the flying school the "Blue-Bird" is ideal.

It has behind it 17 years' experience of aircraft design and construction, and the firm's reputation for sound British workmanship.

WINNER OF

The

GROSVENOR CUP

(PILOTED BY: SQN. LDR. LONGTON, D.F.C., A.F.C.)

BLACKBURN

AEROPLANE & MOTOR·CO·LTD.

LEEDS.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

this carriage attains a speed of 22 m. per second, or 79 kms. (47 miles) per hour, and at the end of its run it is braked again by compressed air.

Successful trials have been carried out with this catapult at Brest.

A special single-seat F.B.A.-Schreck flying-boat, after two preliminary tests with models without pilot, has been flown off the catapult by *Lieut. de Vaisseau* Demouget on several occasions without any discomfort to the pilot in spite of the very rapid acceleration.

Catapults of this type will be installed on the new 10,000-ton light cruisers now passing into the French Navy.

In the lower gallery opposite the F.B.A. stand was what one considered to be the most unfortunate stand of the whole show. This was taken by an association known as *Les Ailes Brisées*, a body that has been formed for the protection of mutilated pilots. This stand was occupied by three unfortunate individuals who had suffered from severe burns, presumably in crashes, and as a result had no faces, but merely vast cicatrices with holes for eyes, noses and mouths.

As a means of soliciting funds this manner of publicity may have been satisfactory, but as propaganda for Aviation one can think of nothing that would tend more to discourage a Frenchman or any other person from taking to the air.

On the Blériot stand was shown the actual Spad 61 biplane with which M. Callizo put up the World's Height Record. In order to translate the 12,442 metres into something understandable to the average Parisien, the Blériot company showed a tower of 40 miniature Eiffel Towers mounted one above the other reaching to a scale equivalent of the height record.

One understands that M. Citroën, who already owns the entire advertising space on the real Eiffel Tower, was seen to be gazing enviously at the model with a view to having it reproduced full size.

Naturally the Fiat engine stand aroused considerable interest in view of the success of the Fiat A.S2 in the Schneider Cup, and, although the A.S2 was not shown, an effort was made to bring the Macchi 39 racing seaplane into the show.

It was actually unloaded at Cherbourg but the adamant Douane demanded so much money in Customs duties that it was decided not to proceed any further.

Similarly Herr Udet, the famous German war pilot, was

SENDING THE S.O.S. TO INDIA.

As reported last week, Sir Samuel Hoare, the Lady Maund Hoare, Sir Geoffrey Salmond and others who are flying to Delhi in the De Havilland Hercules (three Bristol Jupiters) piloted by Mr. Barnard arrived to schedule at Marseilles on Dec. 27.

On Dec. 28 they left at 07.40 hrs. and flew to Naples by way of Pisa.

On Dec. 29 they flew to Malta where they arrived at 15.40 hrs.

On Dec. 30 at 07.00 hrs. they flew to Homs across the Mediterranean. After leaving it was discovered that Mr. Emmott, the cinematographer, was not on board, which seems to have been very bad staff work on the part of Mr. Emmott, and there will be no cinema record of this part of the voyage. The party reached Homs at 09.30, and later flew on to Benghazi. [NOTE.—This place Homs is the ancient Lebda and is spelled Khoms in the list of authenticated names issued by the Royal Geographical Society for British Official use. It must not be confounded with Homs in Syria.—C. C. G.]

On Dec. 31 they flew from Benghazi to Aboukir, which they reached at 14.40 hrs.

Here Mr. Wolley Dod took over from Mr. Barnard. On Jan. 1 they left Aboukir and started on the first part of what is to be the regular service and flew to Ziza.

On Jan. 2 they flew by way of Rutba Wells to Baghdad where they were joined by Sir Sefton Brancker.

On Jan. 3 they flew to Basra, where they arrived at 11.15 hrs., and later to Bushire where they arrived at 15.33.

On Jan. 4 they left Bushire accompanied by Messrs. Stack and Leete on Moths and flew to Lingeh, one of the new Imperial Airways aerodromes on the Persian Gulf, between Bushire and Jask, where they arrived at 07.10. The Moths arrived shortly after. They were due at Jask later in the day.

To-day, Wednesday, they are due to arrive at Karachi.

THE U.S. AIR BUDGET FOR 1928.

In the Budget for the fiscal year July 1, 1927—June 30, 1928, made public in the President's message to the House of Representatives in December, a total of more than \$82,500,000 has been requested for the Air activities of the U.S. Government.

The Air Corps estimate totals \$20,602,594, as compared with \$15,050,000 for last year.

invited to visit Paris by the *Union des Pilots Civils* to attend the Salon and to deliver a lecture on German Aviation. The films he brought with him were held up by the French Customs but fortunately they were extracted by strictly unofficial methods some five hours later.

Having been forced to pay more than one paltry sum for importing some of England's cheapest cigarettes into France on several occasions, one feels that it is about time that Signor Macchi, Herr Udet and oneself did a bit of consolidating, and addressed a short sharp note to the French Chancellor of the Exchequer.

In spite of statements to the contrary there was evidence of the existence of German aviation in the Salon. On the stand of the Lignes Farman was shown a beautiful little model of a Rolls-Royce-engined Dornier Komet, which type of machine operates in conjunction with the Farman F.170 or Jabiru on the Paris—Cologne—Essen—Berlin air route.

Over the entrance and above the balcony was shown a photograph of the five-Jupiter-engined Penhoët-Richard flying-boat. It is understood that considerable controversy was aroused by this mastodon of the air. It was discovered that it was impossible to get the machine into the Salon as an exhibit owing to its huge size, and for a time it was thought that the only way out of the difficulty would be to hold the Salon in its hull. An alternative suggestion was to leave the Penhoët in its native element and fit the Grand Palais with Jupiter engines and floats and fly it over to the boat and make a stalled candle-extinguisher landing, and so get it in that way. This scheme met with considerable opposition from the water-cooled engine firms.

The photograph idea was a last resort, but it was quite a success. The bowler-hatted bandmen in the gallery were immediately below it, looking as though they were disporting themselves in the briny, and gave it the necessary scale effect.

The story of the British visitor who offered five shillings to a camouflaged Roumanian General for his collection of catalogues, was one of the choice bits of the Show, but if one went on recalling such incidents goodness knows what would happen.

Anyway, I was only supposed to draw things, so I will end up by hoping that for the next Paris Show artists will be provided with wheel chairs pushed by policemen, and a free issue of paper, pencils, indiarubber and *Crog Américain*. *Le dixième Salon est mort. Vive l'onzième Salon.*

The Navy Air Service estimate totals \$19,981,000, as compared with \$18,505,288 for last year.

In addition there is added a sum of \$1,850,000 for salaries and provisions provided the two new aircraft-carriers are put into commission during the coming year.

Of these sums, the U.S. Aircraft Industry is to receive \$20,600,000 for new aircraft equipment for both services.

Under the new Aeronautics Branch of the Department of Commerce a total of \$4,015,750 is provided for civil aviation. Of this total \$796,250 is for general operations and \$3,219,500 is for the establishment and maintenance of airways and aids to air navigation.

THE ROYAL AERONAUTICAL SOCIETY.

It is announced that the Royal Aeronautical Society has arranged with the Air Ministry for the publication in The Aeronautical Journal of the abstracts from the technical Press of the world of articles of aeronautical interest which are prepared by the Air Ministry.

These abstracts give full references to the original articles and should undoubtedly prove of value to all concerned.

THE INSTITUTION OF AERONAUTICAL ENGINEERS.

The Institution of Aeronautical Engineers, following a lead set with marked success by the Royal Aero Club, has decided to institute a series of House Dinners, to be followed by a discussion on some subject of general interest to its members.

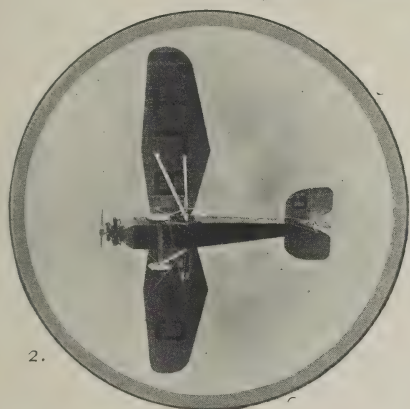
The first of these is to be held on Friday, Jan. 28, at The Engineers' Club, Coventry Street, when the subject for discussion will be "Aeronautical Engineering." Tickets for members and their guests will be 5s. each. Early application for these should be made to the Hon. Sec. at the Institution's Offices, 34, Broadway, Westminster, S.W.1.

On Thursday, Jan. 13, Prof. F. C. Lea, D.Sc., will read a paper before the Institution of Aeronautical Engineers entitled "Some Experiments on the Effects of Repeated Stresses on Materials."

On Tuesday, Jan. 25, Capt. F. S. Barnwell, O.B.E., A.F.C., will read a paper entitled "Some Notes on the Design of Aircrafts."

Both these papers will be read at meetings held at 6.30 p.m. in the rooms of the Junior Institution of Aeronautical Engineers, 39, Victoria Street, S.W.1.

Both papers are by leading authorities on the subjects with which they deal, and both subjects are of very direct importance to aeronautics.



1. The Yeovil Bomber.
2. The Westland Widgeon.

Safety, Speed & Comfort IN WESTLAND MACHINES

For eleven years we have been designing and building aeroplanes, and to-day the reputation of Westland Aircraft for safety, speed and comfort is world-wide.

Our designs comprise all types from private single seaters to large twin engined bombing machines.

In these days road travel is anything but pleasant. By owning a light passenger machine you can recapture the joys of travel. We intend to publish shortly particulars of Widgeon III, a light passenger Monoplane which will be within reach of the man of moderate means. The machine folds, and will go comfortably into an ordinary garage. Widgeon II, the parent machine was the fastest machine in the Grosvenor Cup Race this year, with an average speed of 105.5 m.p.h.

We are supplying numbers of machines to the Royal Air Force both at home and abroad. We have our own 4 ft. wind channel for testing models, and our extensive aerodrome is situated by the side of the works for testing the finished machines. Enquiries are solicited for aircraft for all purposes.

WESTLAND AIRCRAFT FOR BUSINESS OR PLEASURE.

WESTLAND AIRCRAFT WORKS

(Branch of Petters Limited),

YEOVIL

ENGLAND.

THE FLYING CLUBS. The London Aeroplane Club.

Report for week ending Jan. 2, 1927.

The Club, which was closed down for a week during the Christmas holidays, reopened on Friday, Dec. 31 last. For the week ending Jan. 2, 1927, the flying during the three days amounted to 20 hrs. 35 mins.

The following had flying instruction:—L. C. Davey, B. Roxburgh Smith, J. J. Tofer, Miss Fletcher, Miss Spooner, E. J. B. King, J. H. Saffery, C. H. Saxon Mills, H. O. Guggenheim, C. G. Misses, D. H. P. Esler, N. H. M. Watkins, H. Solomon, O. J. Tapper, E. G. Denton, A. R. Ogston.

The following made solo flights:—O. J. Tapper, B. Roxburgh Smith, C. E. Murrell, G. Terrell, E. S. Brough, A. G. D. Alderson, H. Spooner, K. V. Wright, J. H. Saffery, A. R. Ogston, N. J. Hulbert, D. H. P. Esler, S. O. Bradshaw, G. H. Craig, N. H. Jones.

Mr. C. D. Barnard and Mr. R. W. Reeve, the De Havilland pilots, assisted during the week with the flying instruction.

Joy-rides were given to the following members:—Miss Terrell, H. J. Greenland, Mrs. Hunt, Miss Wilson, L. C. Davey, Dr. Cook, Mrs. Cook, C. H. Swann.

The total flying time for the month of December was 68 hrs. 30 mins.

SIX MONTHS' WORK.—The total flying time for the six months ending Dec. 31, 1926, was 86½ hrs. 55 mins., made up as follows:—Dual instruction, 44½ hrs. 15 mins. Solo flights, 20½ hrs. 50 mins. Joy-rides, 55 hrs. 10 mins. Test Flights, 73 hrs. 40 mins.

The total number of flights made during the period was 2,737. Membership.—The membership of the Club at Dec. 31, 1926, was:—Flying membership, 209; Associates, 105.

Forty-six hold "A" Licences and of these 30 have been trained entirely by the Club.

Club Equipment.—The Club has now four D.H. Moths, and three spare engines. All the engines have been converted to dual ignition and have strengthened crankcases.

Ground Engineer.—Mr. William Moss has been appointed Ground Engineer and started his duties on Saturday last.

Mr. S. L. F. St. Barbe continues to make good progress and has now left the Hendon Cottage Hospital.

The Newcastle-upon-Tyne Aero Club Ltd.

Report for week ending Dec. 26.

The engines of both the Moth and the Avro have been changed during the week so that the machines were ready for work during the holidays. L.V. will be ready for delivery about Jan. 20.

Total flying time 7 hrs. 7 mins.—4 hrs. 37 mins. on the Moth and 2 hrs. 37 mins. on the Avro.

Dual 2 hrs. 10 mins. Solo 2 hrs. 5 mins. Tests 22 mins. The following members flew under instruction with Mr. J. D. Parkinson: Messrs. Turnbull, J. M. Kennedy, J. Stawart.

Mr. J. D. Irving flew twice on Sunday. He has now received his R.A.C. certificate.

Mr. R. N. Thompson took up several passengers and Mr. C. Thompson flew with Mrs. Heslop.

The Avro was in great demand on Sunday, the first time it had been flown since arriving, with the exception of some tests. Mr. Baxter Ellis flew with Mrs. Ellis and Master Herbert Ellis, Mr. W. H. Leete, and Mr. J. M. Kennedy. Mr. H. H. Leech with Mr. G. Holmes and Mr. P. Holmes. Mr. J. D. Parkinson with Mrs. and Miss Tiley, Miss Keen, Mr. C. J. Thirlwell, Mr. Ogdon, Mr. Robson and Mr. Jennings.

Report for week ending Jan. 2, 1927.

Total flying time 16 hrs. 37 mins. (on Moth). Dual 7 hrs. 45 mins. Solo (training) 1 hr. 5 mins. Solo ("A" pilots) 6 hrs. 57 mins. Joy-rides 35 mins. Tests 15 mins.

On Avro 1 hr. 40 mins.

Gales have again been the rule, otherwise a considerably larger amount of flying would have been done, as there was a good attendance of members during the week.

The following members flew under instruction with Mr. Parkinson:—Mr. J. Stawart, Mr. F. L. Turnbull, Mr. J. M. Kennedy, and Mr. A. Bell.

Mr. J. D. Irving, Mr. J. M. Kennedy, and Mr. H. D. Matthews flew solo.

The following "A" pilots flew with passengers:—Mr. R. N. Thompson with Mr. Thirlwell and Mr. Pike. Dr. H. L. B. Dixon with Mr. Robson and Miss Howard. Mr. H. H. Leech Lord Ossulston. And Mr. C. Thompson with Mrs. Heslop.

Mr. J. M. Kennedy was "launched" on the 27th, putting up a good show.

Mr. and Mrs. J. D. Irving very kindly presented an oil stove and carpet for the office, which are much appreciated. It is regretted that this was not acknowledged in a previous report.

The Lancashire Aero Club.

Report for week ending Dec. 25.

Flying has only taken place on three days as the aerodrome has been closed for holidays during the remainder of the period.

Total flying time 9 hrs. 45 mins., made up as follows:—

Dual with Messrs. Brown and Cantrill: Messrs. Birley 1 hr. 15 mins., Abdulla and Fallon 55 mins., each, Wade 40 mins., Dickinson 35 mins., Anderson 30 mins., Miss Brown 30 mins., Messrs. Nelson and Leigh 20 mins. each, Goodyear, Hardy and Forshaw 10 mins. each, Twemlow 15 mins.

Solo: Lacayo 25 mins., Birley 15 mins. Joy-rides: With Mr. Scholes, Mr. James 25 mins.; with Mr. Brown, Mr. James 15 mins.; with Mr. Costa, Mr. Sampedro 20 mins.

Test flights: 1 hr. 20 mins.

Mr. Birley went solo on Tuesday and put up a good show.

On the following day two members of the Club, Messrs. Bert Hinkler and John Leeming, landed an Alpha-Gosport on the summit of Helvellyn. They were greeted by a professor of Greek and left again almost immediately.

In view of the widespread public interest aroused by this flight one feels that a hitherto unpublished account of another daring landing should now be made known. Some little time ago those indomitable Lancashire bird-men, Messrs. Becayo and Lanson, put

a Club Moth down on the sands at Birkdale and the following intimate narrative is now given to the public:—

"As we left Woodford aerodrome on our pigmy aero-foil the sun was shining brightly in the South of England. Striking Westward through a dense fog and steering our course by means of canals and gasometers we at last reached Southport and, after doing three figures of eight to show the local authorities that we had taken our A licence, we glided down towards the Birkdale sands.

"Barely two hundred yards to our left towered the rugged sandhills, while on our right the cruel waves of the sea, which was at high tide, lashed the sands at a distance of not more than two miles. As we neared the ground we passed over several wicked-looking lumps of seaweed while the whole shore was strewn with broken sea-shells.

"As we landed the 'bumps' were so terrific that had our heads not been screwed on exceptionally firmly we must inevitably have lost them. Our landing was observed by several gentlemen in the neighbourhood, one of whom wrote out a certificate and sent it to the chairman. Flight was unfortunate, as it got us into a spot of trouble with the Flying Sub-committee."

It appears to us that we, the correspondent, will also be getting into a spot of trouble if we say much more, so we will be serious for a moment and offer our heartiest congratulations on their achievements to everyone concerned. In case this should not pacify them we would add that we shall be out of England by the time this appears and propose to remain there for some time and have taken adequate precautions for the protection of our wife and children during our absence.

P.S.—We note the Hampshire Club's suggestion of last week. We think very highly of the Hampshire Club and are grieved that they should have such a low opinion of us as to suppose that we would lend them half-a-crown.

Report for week ending Jan. 1, 1927.

The weather, though none too clear, permitted of three first solos, by Miss Brown, Dr. Wade, and Mr. Abdalla.

Miss Brown is the first lady to be launched solo by this Club. Hers was the last flight in 1926, and took place just as the light began to fail on Friday afternoon last. Miss Brown is an all-round sports-woman, being a member of the English hockey team which leaves for Australia in April.

Flying during the week was 14 hrs., made up as follows:—

Dual with Messrs. Brown, Cantrill and Scholes:—Miss Brown 20 mins., Messrs. Abdalla 2 hrs., Fallon 55 mins., Twemlow 35 mins., Dickinson 45 mins., Leigh 25 mins., Carrington 20 mins., Forshaw 20 mins., Michelson 20 mins., Keyes 15 mins., and Dr. Wade 25 mins. Sols.—Messrs. Costa 35 mins., Fallon 1 hr., Twemlow 45 mins., Abdalla 25 mins., Miss Brown 15 mins., Birley 15 mins., Dr. Wade 10 mins.

Joy-rides with Messrs. Costa, Lacayo, Scholes or Cantrill:—Miss Resfield, Messrs. Hardy, Williams, Wood, Roody, Walker, Ramsey, Young, Thorpe, Giorgi, Fowes.

Tests occupied 1 hr. 25 mins.

Mr. Allan Goodfellow was seen to leave hurriedly for Switzerland early last week. It is not thought that the police are responsible for this, the general opinion being that he is simply suffering from a rather bad attack of Mountophobia (Avro-Alphitis), which only the sight of forbidding-looking snow-capped peaks can eradicate.

Friends who may be so unfortunate as to be in the vicinity of Manchester on Friday, Jan. 21, are reminded that a Club Dance is being held on that evening at the Manchester Limited Restaurant in Cross Street.

Tickets, Single 15s., Double £1 15s., may be obtained from Mr. H. S. Shen, "Cranford," Parkfield Road, Didsbury, Manchester, or from Mr. Atherton at the Aerodrome. One believes that it is going to be a pretty fair party.

The Hampshire Aeroplane Club.

Report for two weeks ending Friday, Dec. 31, 1926.

The following members received instruction:—Lieut. Heinemann 1 hr., Everett 50 mins., Shepherd 40 mins., Dickson 25 mins., Fry 20 mins., Southcliffe 20 mins., Stokes 20 mins., and Lieut. Graham, R.N., 15 mins.

The following members had joy-rides:—Miss Meyes, Mr. Simmonds, Sur., Masters Fossey and Loveday. The last mentioned are two of Commander C. B. Fry's *Mercury* boys who received their flights as prizes in connection with their training.

The soloists were:—Mr. Simmonds 1 hr. 35 mins., Flg. Off. Mellor 1 hr., Preston 45 mins., Fry 30 mins., Bowen 10 mins., Rumble 20 mins., and Keeping 15 mins.

Total flying time 20 hrs. 35 mins. Instruction flying 4 hrs. Passenger flying 2 hrs. Solo flying 4 hrs. 35 mins.

It is less than five months since the Club received its two Moths and now, at the beginning of a new year, it is interesting to look back and review what has been done in those few months.

Over one thousand separate flights have been made, many of them involving five or six landings. One hundred and sixty-four flights have been done by Club members. Eight pupils who had never previously flown an aeroplane have been taught to fly and are now flying solo. And last, but not least, our chairman, Mr. O. E. Simmonds, an old time R.A.F. pilot, has qualified for his "A" licence.

As previously reported, a dinner was held early in December, and the Club House Establishment Fund was opened.

Sir Charles Wakefield, with his usual generosity and air-mindedness, has subscribed £250 and many other donations have been received.

Among those who have come forward to help the Club towards achieving its object of fitting up a really attractive Country Club House are the following:—The President, Lord Louis Mountbatten, £50; Sir Charles Wakefield, £250; Commander I. Bird, £50; Air Vice-Marshall Sir Sefton Brancan, £10; The Directors of the Supermarine Aviation Works Ltd., £50; Lt.-Col. R. E. Crichton, £5; Capt. Wilson, £5; Flt. Lt. Crawford, £1; Mr. R. Bishop, £5; Mr. McKechnie, £2; Miss Manning, £2 10s.; F. O. Clarkson, £2 10s.; Mr. Waite, £1 15s.; Mr. Townsend, £5; Mr. P. Potts, £5; Mr. Taylor Matthews, £5; Mr. K. Lee Guinness, £50; Mr. R. J. Parrott, £5 ss.

The total thus amounts to £504 6s. On Friday, Dec. 24, Mr. Simmonds flew up to Croydon with Mr. Mansbridge as passenger to discuss engine topics with the A.D.C. Aircraft Co. In spite of a 30 m.p.h. head wind and bad visibility, the

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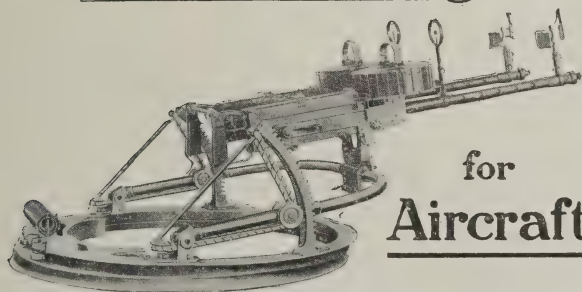
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trip was made in 90 minutes. Unfortunately the engine was so moved at returning to its birthplace that the rear ball-race cracked and an immediate operation was considered necessary.

A.D.C. very sportingly tackled the job straight away, and by working overtime on Christmas Eve had the machine ready by Thursday morning, when Mr. Thomson collected it and flew it back to Hamble.

We are indebted to the ball-race for going sick when the Club was closed down.

A DIARY OF A LIGHT AEROPLANE AIR TOUR.

Recently an officer of the Royal Air Force went for a honeymoon tour on a Blackburn Bluebird (Armstrong-Siddeley Genet engine). The weather was of the worst and he was unable to follow his programme. But the flying which he did shows what can be done with a modern light aeroplane. He intended to fly to Paris on Nov. 26, but was held up by fog until Dec. 1. His journal of the tour is as follows:—

Dec. 1.—Brilliant sunshine in early morning with thick fog in patches slowly getting worse. We were late in starting from Croydon owing to discovering that our compass was not functioning. Brackley lent us a small pocket compass—so we took off at 12.20, landed at Lympe at 13.40—and took off immediately for Hawkinge where I hoped to get the navigation officers to put my compass right before crossing the Channel. Stopped the night at Folkestone.

Dec. 2.—With compass repaired and moved over to the right of cockpit, from where I henceforward flew the machine, we took off from Lympe at 11.15 and set out for Le Bourget. We crossed the Channel and at 13.45 decided to land at Beauvais as I was afraid of running out of petrol. We bought four gallons of French spirit and omelette and coffee—and then at 14.45 took off for Le Bourget. It gradually became foggy and foggy until eventually at Le Bourget it was as thick as mud.

Mr. Michel, of Imperial Airways, looked after us and made us very welcome. We stopped the night in Paris. The Bluebird had not given me a moment's anxiety during the flight from Croydon and the engine was running like a sewing machine. I found that if I had not put some petrol in at Beauvais I should have been just half a gallon too short and would have run out before Le Bourget.

Dec. 3.—Left Le Bourget for Lyon in rather thick mist which got worse as we went on—eventually we had to turn back to Le Bourget. We had a talk about it that afternoon with the meteorological section, who could not hold out any hopes of an improvement for at least a week. We therefore decided to leave the Bluebird under the care of Mr. Michel, of Imperial Airways Ltd., and went to Agay by train. Dec. 12.—Having returned to Paris on the 9th and found it in dense fog we took the first chance we could to get clear out of Le Bourget. On the Monday, the 12th, in heavy mist through which we could just see about halfway across the aerodrome we decided to have a try at getting at any rate as far as Beauvais where the fog was reported to be less dense.

The engine started up quite easily. We took off at 12.15 and passed over Beauvais at 12.55. The fog was now a little less thick and we decided to try to push on to Abbeville.

Had we been in any machine but the Bluebird I doubt whether we could have done so. Its low stalling speed, combined with the comfortable cockpit and the confidence given by the occupants sitting side-by-side and being able to talk to each other, made the world of difference, and tended to make one forget the usual uneasiness one feels when flying under such conditions.

We arrived at Abbeville at 14.00 hours after passing through some very thick patches between Poix and Amiens, which made us edge up to the N.E. in order to get into the Somme valley. Having decided to stop the night we picked down the Bluebird and left it in the open with a sheet over the engine and cockpits.

Dec. 4. The Genet started up without the slightest trouble, as it had all along, notwithstanding the fact that it had stood out all night. We left Abbeville in rather thick mist at 13.35 hours after putting four gallons of French petrol into the tank to make certain of reaching Lympe without running short, and to allow a fair margin in case we had to go off our course.

Our intention was to land at St. Ingelvert, but as it was very foggy there, according to the meteorologists, and rather better at Lympe, we thought we might go straight across the Channel from Boulogne, which we intended reaching by flying along the beach from Le Crotoy. This we did and found it quite pleasant as the tide was out and there was ample room to land on the beach if necessary, on hard sand.

We found Cape Grisnez with clouds at 100 feet and St. Ingelvert getting clearer. We circled around the aerodrome and then made a course across the Channel. We reached Folkestone twenty minutes later, having seen no shipping whatever except the Folkestone-Boulogne steamer about a mile outside Folkestone.

We landed at Lympe at 13.15 hours for petrol. At 14.05 hours we took off for Croydon with the engine still running perfectly and the machine flying splendidly. We landed at Croydon at 15.10 feeling very full out at getting through, as no machine except the Bluebird had left Le Bourget for days past.

During the whole trip to Paris and back not a single thing was done to the machine or engine except in the latter case to clean the plugs—and in the case of the aeroplane, I put some grease in the control pulleys because I saw some handy.

It was a most enjoyable flying trip and we are very keen on repeating it in fine weather.

As for criticism:—If the seats could be staggered slightly to reduce the blind spot on the passenger's side of the fuselage it would improve things a lot for the pilot. Not that it is much to worry about at present—but inexperienced pilots might not like it.

The wheel track could be widened slightly to make damaged wing-skids on landing less likely.

The petrol tank capacity could be increased, with much improvement to the range of the aeroplane, to 16 galls. A little weight could be saved by reducing the size of the oil tank to 1 gall.

The seats would be improved by cutting away the fuselage behind the occupants' heads and allowing them to lean back more. Also for long journeys the present type of seats become incredibly hard.

A tall-tale for petrol would be most useful as it is very difficult to know how much petrol remains unless one knows exactly how much the engine is using per hour.

The cockpit and instrument arrangements generally are splendid and one can get in and out without the fear of damage to fuselage and rudder bars, etc., so usual in other types.

MOTHS ARE CHEAPER!

Particulars of the 1927 model D.H. Moth are published for the first time in the loose insert issued with this copy of *THE AEROPLANE*, by the De Havilland Aircraft Co. Ltd., of Stag Lane Aerodrome, Edgware, N.W.

A reduced price, the fitting of the A.D.C. Cirrus Mk. II engine as standard, and the increase of loose equipment supplied, to include an enlarged tool kit, and a complete set of engine, cockpit, and airscrew covers are of considerable interest to the private owner. Many other improved features have been embodied, all of which are the result of 750,000 miles of experience.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 12; Tuesday, 0; Wednesday, 10; Thursday, 8; Friday, 7; Saturday, 6; Sunday, 0.

IMPERIAL AIRWAYS LTD.:

London—Paris; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam; Cairo—Karachi: Machines 20, passengers 67, freight 6 tons.

AIR UNION:

Paris—London: Machines 7, passengers 17, freight 5 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 8, passengers 3, freight 11 tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 8, passengers 6.

PRIVATE:

Machines 0, passengers 0.

Total number of trips by British Machines, 20, carrying 67 passengers. Foreign Machines, 23, carrying 26 passengers.

Comparative Figures:

Week ending Jan. 2:

Machines, 43; Passengers, 93; Crews, 78; Total personnel, 171.

Corresponding week, 1926:

Machines, 28; Passengers, 39; Crews, 31; Total personnel, 70.

Corresponding week, 1925:

Machines, 22; Passengers, 49; Crews, 25; Total personnel, 74.

Corresponding week, 1924:

Machines, 35; Passengers, 58; Crews, 57; Total personnel, 115.

Corresponding week, 1923:

Machines, 41; Passengers, 109; Crews, 80; Total personnel, 159.

Corresponding week, 1922:

Machines, 15; Passengers, 36; Crews, 23; Total personnel, 59.

Corresponding week, 1921:

Machines, 21; Passengers, 15; Crews, 25; Total personnel, 40.

Croydon Notes.

Verily the French are a strange people. On New Year's Day the whole French nation is *en fête*. One would think that on such occasions the vital services would be maintained. It is natural that the French Air Lines should be cancelled for such a day. All lines, including British, were shut down on Xmas Day. But on New Year's Day the French not only shut down their air lines but they shut down their aerodrome wireless stations as well. The result was that on Saturday morning it was impossible to get any answer from Le Bourget wireless station and so there were no weather or other reports for international air traffic.

On Xmas Eve when Mr. Youell was returning from Cologne on W.10, G-EBMIM, an exhaust manifold of one engine burst and flames shot out onto the centre block of cylinders with the result that the rubber connections of the water system vanished and so did the water.

He landed at Ostend and despatched his six passengers to London by surface transport. He then dismantled the faulty manifold, took it into Ostend and had a quick repair done, refitted it and with a wireless engineer and a mechanic aboard he restarted. He had got to 7,000 ft. and was over mid-Channel when the manifold went again with the same result. He had visions of emulating Mr. Dismore's feat but there was no Pomeranian Dog to offer as a sacrifice to Neptune. He warned all stations to stand by for a Mayday signal and carried on. He arrived safely at Lympe however with 4,000 ft. to spare to the subsequent delight of the good Capt. Lamplugh.

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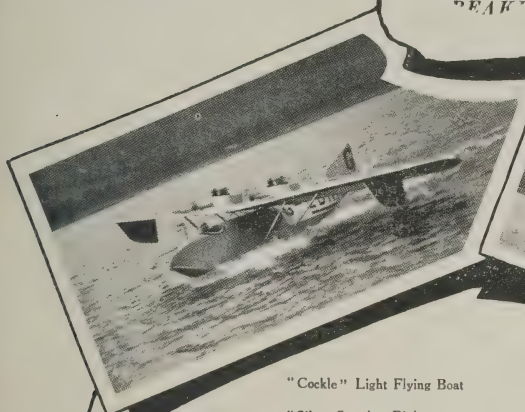
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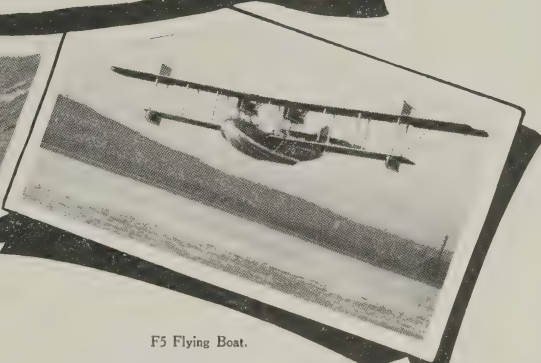
An extract from
"THE TIMES"
 of 20th August, 1926.

Short Brothers are now
 designers and constructors of all-metal floats.
 Other all-metal aircraft are in construction,
 and Great Britain may well lead the world in
 the all-metal construction of seagoing aircraft
 as a result of the independent work done at
 Rochester during the last few years.

BEAKDOWN ON THE



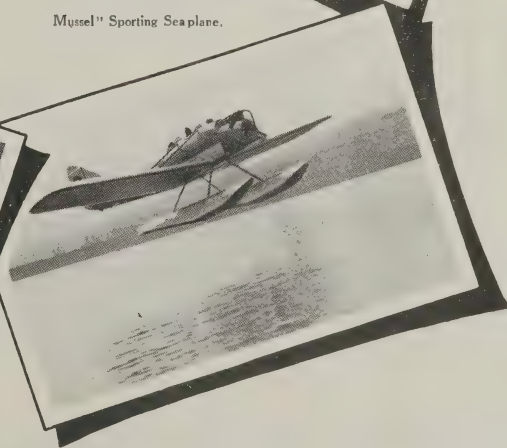
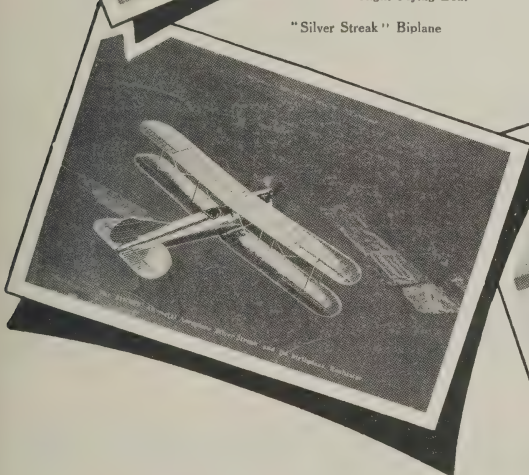
"Cockle" Light Flying Boat



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"Silver Streak" Biplane

Mussel" Sporting Sea plane.



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The result of this has been that Imperial Airways have been carrying out a series of tests to find out exactly what the W.10 will do on one engine and under what conditions, for it has been discovered that the one-engine performance varies considerably with the atmosphere.

On Saturday Lt.-Col. Minchin made a test flight in the new three-engined Fokker belonging to M. Lowenstein.

There was enormous competition among the aerodrome personnel for seats in the machine which is fitted to take six inside and a pilot and one other on the box. With this load he taxied out a hundred yards or so, turned and took off along the new bit of aerodrome south of the control tower. When level with the tower the machine was a good 30 ft. above it, and it continued to show an astonishing rate of climb. And the power is only three 180 h.p. Siddeley Lynxes.

One has been exhorted by the excellent hard-working and virtuous people (which include oneself) who were present on the morning of Boxing Day to assist the departure of the S.O.S. to India to publish a black list of the lazy members of the Aircraft Community who were not present. However as the result of numerous bribes from these black sheep one will refrain. More especially one refrains because Capt. Lamplugh (who, of course, was there) refuses to insure oneself, or any of those who were there or not if one does.

In the list of those present one rather failed to do justice to the De Havilland Company. In addition to Mr. and Mrs. Walker and Mr. Loader, Capt. de Havilland, Mr. Hearle and others of the Company turned up to see their production off. Even in that company however there was at least one black (ST.) BAA!

A new German pilot flying on the Luft Hausa line is Herr Poppe. Presumably when he arrives anywhere with an empty machine his colleagues all sing "Poor Poppe, poor Poppe, he's got nothing at all."

G. D.

A MATTER OF ADVERTISING.

One point about the circulation of THE AEROPLANE is of distinct interest. Ever since this paper started it has had a large circulation among boys of public and private schools. This circulation was looked on by most people as useless. When one was at school one always felt rather insulted at this outlook, and by way of revenge one has been a thorn in the flesh of all advertisers since then. Many people who were at school at that time now hold high positions in the R.A.F. and the Aircraft Industry, and many who are now at school will in a few years hold positions of importance and will be owner-drivers of light aeroplanes.

Therefore one was very interested to hear that Mr. F. N. St. Barbe, Business Manager of the de Havilland Company, considers it extremely important that THE AEROPLANE should circulate at public schools with a view to making boys air-minded so that in three or four years' time they will be buying the successors of the Moth. This farsightedness in the

Industry is very welcome, and it is the more interesting in view of the fact that some two or three years ago the Management of THE AEROPLANE took special steps to secure that the libraries of the best public schools should receive the paper regularly.—G. D.

"PRACTICAL FLYING."

If any readers happen to have copies of "Practical Flying," by Major Gordon McMinnies, published by the Temple Press Ltd, a few years ago, which they are willing to sell, will they please communicate with the Editor of THE AEROPLANE and state a price for their copies?

PERSONAL NOTICES.

DEATHS.

MACNEAL.—On Dec. 29, at Ambala, India, as the result of a flying accident, Alastair Neil Macneal, Flg. Off. (Hon. Flt. Lt.), No. 28 (Army Co-operation) Sqdn., R.A.F., second son of the late Capt. Hector and Mrs. Macneal, of Ugadale, Lossit, Campbelltown, Argyll.

Mr. Macneal rejoined the R.A.F. in April, 1923, and was posted to No. 100 Sqdn. for a course of instruction. In March, 1924, he was posted to the R.A.F. Base, Gosport, and in April of the same year to No. 28 (Army Co-operation) Sqdn., India.

OVERY.—On Dec. 29, at Ambala, India, as the result of a flying accident, Lt.-AC. Cyril Arthur Overy, R.A.F.

PARKER.—On Dec. 28, E. B. Parker, formerly Assistant Paymaster, R.N., and lately of Short Brothers Ltd., after a long illness.

[E. B. Parker was one of the real pioneers of Service Aviation. As a Paymaster, R.N., he learned to fly at Eastchurch and took his certificate early in 1913 not long after the first batch of officers appointed by the Admiralty to learn to fly had finished their course. He was a highly efficient pilot of the early Short machines and if he had been able to remain in the Service would undoubtedly have been one of the most successful naval aviators, for besides being a good pilot he had intelligence of a high order and was much liked.]

Unfortunately while at Eastchurch he got a bad chill while duck shooting in the marshes of the Swale, and from this chill developed tuberculosis. As a result he was invalided out of the Navy before the outbreak of War in 1914. He spent a considerable time in a sanatorium and apparently made a very good recovery.

On returning to ordinary life, he joined Short Brothers Ltd., having been, like all the early naval aviators, on the friendliest terms with the brothers Horace and Oswald Short at Eastchurch. When Short Brothers opened their London Office in Whitehall during the War Parker was put in charge as a kind of liaison officer between the Works and the Admiralty, which department absorbed all the firm's output. Parker's natural likeableness, coupled with his having been a naval officer, naturally made him the right man for the job, and he continued to hold that same position when the Air Ministry came into being.

A Prosperous New Year.

WE wish British Aviation a year of Prosperity and Progress, and take this opportunity to thank our many friends for their support, and to hope that their continued goodwill will ensure our mutual welfare during 1927.

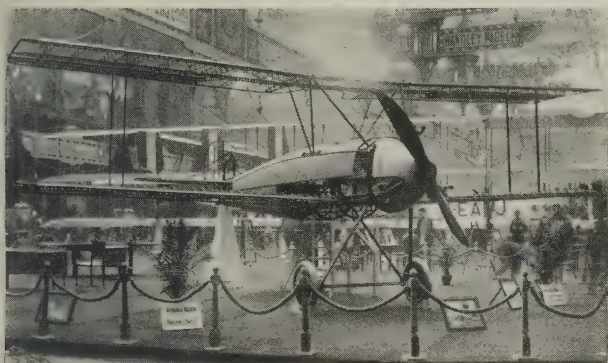
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PROGRESS



1919

THE Boulton & Paul P.10 Aeroplane, exhibited at the 1919 Paris Show, was the first complete example of modern all-metal construction to be introduced to the public. It compared on very favourable terms with contemporary wooden machines. Developments since that date have consisted not merely in the incorporation of these methods of construction in new types of aeroplanes. In the

evolution of new and better constructional features, in the application of constant aerodynamical research to body and wing forms, in the employment of new and better materials, in the improvement of methods of control, in the introduction of safe protective coatings—in these and many other ways, Boulton & Paul aircraft embody not only experience but

PROGRESS.



1925

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Some two years ago his old trouble broke out again and though he made a very gallant fight, it was evident to those who knew him that he could not last long.

All the old timers who knew Eastchurch in those happy days before the War will grieve to hear of Parker's death. "Poggy," as he was called by his friends in those days, was one of the very best. He was always cheerful, and one of the kindest-hearted souls one has met. And yet his character was such that he was respected equally by officers and men. If his health had not let him down, he would by now have been one of the senior officers of the Royal Air Force and, even among the seniors, men of his type are by no means common.

In spite of his ill health, he did good service to this country during the War, for with his tact and his knowledge of his subject he undoubtedly contributed materially to the development and output of aircraft, not only as a member of the staff of Short Bros. but as a member of the Council of the S.B.A.C. To his wife and family one offers sincere sympathy on behalf of all those who knew him.—C. G. G.]

MARRIAGES.

GOWER—DE KALMAR.—On Nov. 16, at Soubotica, Yugo-Slavia, Major Edwin Lewis Gower, late R.F.C. and R.A.F., to Margarita, daughter of Kis Budafai Kalmar.

[Major Gower will be remembered as being one of the first Blériot pilots in England and, in the early Brooklands days, the successor to the late Gustave Hamel as chief pilot and instructor at the Blériot school. At the beginning of the War 1914-18 he joined the R.F.C. and served in that Corps and the R.A.F. His old friends among the pioneers of aviation will wish him all good fortune.—C. G. G.]

SLESSOR—KING.—On Dec. 27, at St. Luke's, Chelsea, Lt. Evelyn Slessor, R.N., to Gladys Hope Essington King.

FORTHCOMING MARRIAGES.

ALLCROFT—GLOVER.—The marriage arranged between John D. Allcroft, R.A.F., elder son of Mrs. M. H. Allcroft, of Sowberry Court, Moulsoford, Berks, and the late John D. Allcroft, and Agnes, daughter of the late Rev. James Glover, and niece of Miss Hill, of Edinburgh, will take place on Jan. 10.

CLOGSTOUN—LIDDALL.—The engagement is announced between Flt. Lt. T. O. Clogstoun, R.A.F., younger son of H. C. Clogstoun, C.I.E., O.B.E., and the late Mrs. Clogstoun, and Katharin, youngest daughter of the late Mr. and Mrs. W. J. N. Liddall, of Edinburgh.

GEORGE—BALDWIN.—The engagement is announced between Flt. Lt. Robert Allingham George, R.A.F., elder surviving son of Mr. and Mrs. William George, of Invergordon, Ross-shire, and Sybil Elizabeth, second daughter of Mr. and Mrs. Arthur Reginald Baldwin, of Caythorpe, Lincoln, late of Brough House, East Yorkshire.

BIRTHS.

SALMOND.—On Dec. 20, at Chestnut House, Uxbridge, Monica, wife of Air Marshal Sir John Salmond—a son.

WEISS.—On Aug. 31, at Singapore, to the wife of J. Bernard Weiss—a son (Cedric).

WILLIAMSON.—On Dec. 18, at the Military Hospital, Moascar, Egypt, to Lucie, wife of Flt. Lt. J. J. Williamson, A.F.C.—a daughter (still-born).

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Edited by C. G. GREG

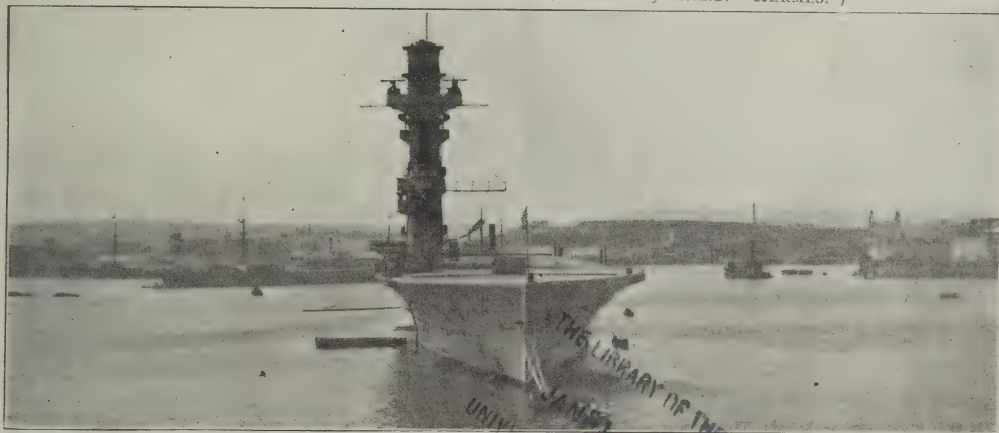
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SIXPENCE WEEKLY.

[Registered at the G.P.O.
as a Newspaper.]

ALTIORA PETO.

(The Motto of H.M.S. "HERMES.")



H.M.S. "HERMES" AT MALTA.—An interesting bow view of the "Hermes," which clearly shows the flying-off and landing-deck and the restriction of all superstructure to the starboard side of the ship. H.M.S. "Hermes" has been detached from the Mediterranean Fleet for temporary service in Chinese waters in connection with the present trouble in China. The photograph was taken by W. Dingwall Kennedy, late R.A.F.

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1927.

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ON PROGRESS IN 1926.—II.

In Civil Aviation there has been quite a great deal of progress, and it seems to have sprung up quite suddenly. In spite of the Gliding Meeting in 1922 and the flying of light aeroplanes in various competitions in 1923, 1924, 1925 and 1926, there has been astonishingly little interest in private flying until this past year. A few enthusiasts have owned machines. And there have been the usual articles, and references in speeches, by people who know nothing whatever about aviation, about the great flying era of the future in which everybody will keep aeroplanes in their own back yards and apparently fly them off tennis courts, or off the public road. But there has been precious little general interest in the subject until this year.

Whether it was that the psychological momentum caused by the growing interest in flying among all classes of people influenced the Air Ministry, or whether it was that the Air Ministry received direct inspiration from God in the interests of the British Nation, one would not pretend even to guess. But there is no doubt that the Air Ministry did start the flying clubs at precisely the right moment. And as the result of the Club Movement all sorts of people are beginning to take an active interest in flying who would otherwise never have had a chance.

THE FLYING CLUBS.

We must not forget that the way for the success of the Flying Clubs has actually been paved by all the joy-ride flying done by the Berkshire Aviation Tours and the Surrey Flying Services and the Cornwall Aviation Company and sundry minor concerns who have carried hundreds of thousands of passengers with remarkable freedom from accident. But anyhow 1926 does mark the climax when the mere joy-riders have begun to become practical aviators.

The Air Ministry's excuse, or perhaps one should say the excuse of the official apologists of the Air Ministry, for expending John Citizen's money on buying aeroplanes for and giving cash subsidies to the Flying Clubs, is that the Clubs may be regarded as a source of supply for future pilots for the Royal Air Force. Personally one regards that excuse as pure bunkum.

One believes that only a very small percentage of the people trained to fly by the Flying Clubs would be useful as pilots in time of war. Probably most of them would never pass the R.A.F. Medical Boards and probably a lot more of them would have no ambition to fly in the face of the enemy at all, even though they have no objection to flying in the face of Providence, as some of them do at present—judging by their manoeuvres in the air.

The real usefulness of the Flying Clubs is to form little centres of aeronautical thought and action all over the country, which by increasing the psychological moment among the people help to make the Nation air-minded, according to the gospel of St. Hoare. In fact one regards the Flying Clubs very much more as little bands of apostles among the heathen than as serious sources of supply for the R.A.F.

Certainly in the future, as flying becomes a national sport, and as the lad of the village takes to keeping an aeroplane instead of a speed car, they will be potential sources for the supply of pilots, but they are not at present. They are in fact something far more important than that. And 1926 deserves to go down to history as the year which saw the rise of the Club movement.

TO WHOM THE GLORY?

Seeing how important the Club movement is, one must in common fairness, although one has conscientious objections to advertising Government servants whether Service or Civil, give chief credit for the success of the Flying Clubs to Air Vice-Marshal Sir Sefton Brancker and his able aides, Lieut.-Colonel Ivo Edwards and Lieut.-Colonel F. C. Sheldermine who, in their respective departments, have done everything possible to make things easy for the officials and members of the Clubs, and have winked amiably at all sorts of infringements of regulations and agreements.

One must remember that these Clubs are an entirely new thing, and most of the people connected with them had had no experience of running anything of the kind. To a certain extent they may have learned something from local motor clubs, but actually the whole system of organising and



THE SUPER-WAL.—The Dornier Super-wal, fitted with two 650 h.p. Rolls-Royce Condor engines, alighting on Lake Constance at Friedrichshafen. This machine has accommodation for 21 passengers and pilot and navigator. On test the Super-wal carried, in two trips, 53 and 60 passengers, the latter a load nearly equivalent to the weight of the boat.

running these Flying Clubs was an absolute experiment. The fact that they now have between them over 1,000 members, and could have a lot more if there was any possibility of providing flying for them, shows how well the Clubs have been run.

One would like to mention by name the chairman, secretaries, pilots and ground engineers who have contributed to this success by their energy and initiative and self-sacrifice. The good which was done by the Displays organised by the Lancashire, Newcastle and Yorkshire Clubs cannot be estimated. But it must have contributed enormously to the air-mindedness of the population of the area of which each Club is the centre. The way in which thousands of people flocked to those meetings shows that the provincial public can be induced to take a very lively and intelligent interest in flying.

The amount of flying that has been done under the circumstances, especially the English weather, is simply amazing. And the fact that only one fatal accident should have occurred in the whole year would be extraordinary if one did not know the skill and devotion with which the pilots and ground engineers do their work.

Where all are so keen it may perhaps be unfair to make comparisons, but one cannot help saying that the two Northern Clubs, Lancashire and Newcastle, deserve the greatest credit, as they have had to work against the worst weather on aerodromes which are nothing like so good as those of the Southern Clubs. But one's opinion of the Clubs is rather like that of the British Workman who remarked that there is no bad beer but some beer is better than others. One can only hope that in 1927 the Club machines and members may increase and multiply.

THE NEVER-FAILING FOUNT.

Before leaving the subject of the Clubs one must pay a special tribute to Sir Charles Cheers Wakefield, who has made himself a veritable Godfather to the Clubs. Considering that Sir Charles is recognised in the City as safe for a handsome contribution to any subscription list which may be open for any genuine charity it is astonishing that he should find both the time to interest himself in and the money to help the Flying Clubs in the way that he has done.

Sir Charles is a wealthy man, but there are a great many men in this country who are as wealthy and some who are a good deal more so. If only a few of them would do as much for flying as Sir Charles has done we should make very much more rapid progress.

AIR RACING.

This brings us naturally to the subject of air racing. Here there is very little progress to report. In fact we have really progressed backwards except in details. Almost everything that could be done to spoil our air racing has been done by the people in the Royal Aero Club to whose care it was committed.

That very enjoyable little meeting at Bournemouth showed

that the British Public, even without the inducement of local patriotism centred in local Clubs, will come and see air racing if given the opportunity in pleasant surroundings. And even the misplacing of the turning point and other mistakes in organisation by the Aero Club officials failed to destroy the attraction of the meeting.

Similar stupid mistakes were made in the organisation and arrangement of the races at Lympne, and at Hendon on the day of the King's Cup race. But in spite of the Aero Club it was evident that the Public, both in the Metropolitan area and in the Provinces, can be induced to enjoy and understand air racing, if given the opportunity.

AIR SURVEY.

Another phase of Civil Aviation which has become particularly prominent in 1926 is the air survey business. The Aircraft Operating Co. Ltd. and the Air Survey Co. Ltd. have been working away quietly for a number of years, each doing remarkably valuable work in its own way. But only in this year has their work become publicly prominent.

Some day history will record the names of Major H. Hemming of the Aircraft Operating Co. Ltd. and of Mr. Ronald Kemp of the Air Survey Co. Ltd. as the great pioneers of a new industry. One is quite prepared to admit that the survey work which has been done by the Royal Canadian Air Force and by the Fairchild Company and the Laurentide Company in Canada, and by the Fairchild Company and by Brock and Weymouth in the United States, has exceeded greatly in extent that done by our two English aerial surveying firms. But those two firms are responsible for demonstrating to the British Empire, apart from Canada, what can be done in this line of business.

As the rest of the British Empire is somewhat larger than the habitable part of Canada, and has a population which is perhaps a hundred times as great, the scope for aerial survey work may be easily understood.

IMPERIAL AIR TOURING.

Mention of the extent of the British Empire naturally suggests the development of Imperial Communication. The flights by Mr. Alan Cobham, on a D.H.50 with Jaguar engine, to the Cape and back and to Australia and back, together with the various R.A.F. flights which were mentioned last week, have indicated to the King-Emperor's subjects what air transport may do for them in the future.

That enterprising and daring flight by Messrs. Neville Stack and Bernard Leete, on two de Havilland Moths with Cirrus engines, complete with banjulele, all the way to India, has shown how air touring throughout the Empire will also develop in the future. This performance did not merely demonstrate the staunchness of the machines, the reliability of the engines and the stoniness of heart of the pilots. It showed that already, thanks very much to the commercial enterprise of the Shell and Anglo-American and British



MT. GEDE, nr. BANDEONG.—An aerial view of the crater of Mt. Gede, an active volcano, 9770 ft. in height, near Bandeong, Java, taken from a machine belonging to the Dutch Colonial Army Air Service.

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Petroleum Companies, who between them now have petrol and oil dumps all along any route which any sane aviator is likely to fly, it is possible for any aviator, on any reliable aeroplane, to fly from one end of the Empire to the other and be pretty sure of finding aerodromes with proper supplies of fuel and oil at reasonable intervals the whole way.

One is perfectly sure that within the next few years we shall find a whole lot of sportsmen following the example of Messrs. Stack and Leete, though they may choose to go by the overland route across Central Europe and Turkey instead of going over the Mediterranean. After all, any aeroplane with tank capacity for 250 miles non-stop can do the journey.

The cost of doing an aerial tour round the British Empire is no more than that of doing a motor tour in England. Aerodrome fees cost no more than garage fees, and in many places they cost nothing at all. Petrol costs very little more than that for a big car, and hotel bills are much the same all the World over. So, barring a little risk of forced landings, a sportsman with a £750 Moth (taking that as the price in round figures, with extras) can do a tour to India and back at much about the same cost and in much about the same time as he could do a car tour of England.

IMPERIAL AIRWAYS.

1926 has also marked the settling down to solid work of Imperial Airways Ltd. and the inauguration of the middle section of the Imperial air route from England to Australia. This is also a matter of considerable moment in the history of aviation.

In spite of one of its machines alighting in the Channel and having its passengers and crew saved more by luck than judgment, Imperial Airways Ltd. have proved that by thoroughly good engineering organisation aeroplanes can be made pretty nearly as reliable as railway trains, at any rate French railway trains, and that is quite good enough for a new method of transport.

The number of passengers carried by Imperial Airways on the cross-Channel services has certainly been a good deal higher in 1926 than in any preceding year. Week after week during the Summer the figures for the passengers carried by all the air lines together have exceeded those for the corresponding weeks of previous years.

For the week ending August 15, 1926, the number of passengers carried was 1,313, which beat the preceding record of 1,125 for the week ending August 21, 1925. Of the former number 841 passengers were carried by Imperial Airways.

THE S.O.S. ARRIVES IN INDIA.

The De Havilland Hercules (three Bristol Jupiters) piloted by Mr. C. F. Wolley Dod, navigated by Sq. Ldr. Johnston, and carrying the Secretary of State for Air (Sir Samuel Hoare), the Lady Maud Hoare, Sir Geoffrey Salmond, and staff, arrived at Jask at 11.35 hrs. on Jan. 4.

On Jan. 5 they left for Karachi but had to return to Jask owing to a severe sandstorm.

On Jan. 6 they left Jask at 09.16 and reached Karachi at 17.23 hrs. having landed at Pasni *en route*.

On Jan. 7 they left Karachi at 11.35 for Jodhpur, which they reached without incident.

On Jan. 8 at 12.30 hrs. the journey was concluded when the Hercules arrived at Delhi. Sir Samuel was greeted by Field Marshal Sir William Birdwood and other high officials.

Sir Samuel received a message of congratulation from H.M.

PERSONAL RECORDS.

Here there is interest in recording that for 1926 the total number of aircraft in and out of the Terminal Aerodrome at Croydon was 5,446. They carried 26,531 passengers, of whom 16,652 were carried in British machines. Passengers and crews together made up a total of 33,460 people who crossed the Channel by air in 1926 without damage.

Among the remarkable achievements of air travel in 1926 we must not forget the record set up by Mr. Lester D. Gardner, Editor of *Aviation*, New York, the leading American aeronautical publication, who between the end of April and the end of July covered some 21,000 miles by air without a single forced landing. He covered every air route in Europe at least once, as well as the Baghdad and back route and a great many miles in Iraq, and finished his performance by dining one night in Moscow, the next night in Berlin and the next night in London.

Though this was not strictly speaking a British performance, a great deal of it was done on British aeroplanes, and most of it with British engines. Also, for all his being 100 per cent. American, anybody who knows him will recognise Mr. Gardner as being essentially the most English of Englishmen.

At the very end of the year Imperial Airways, plus the De Havilland Company and the Bristol Jupiter engine, scored an outstanding success in taking the Secretary of State for Air and Lady Maud Hoare and Staff to India, and in getting two other De Havilland Herculeses out to the East in time for the official opening of the Cairo—Karachi service.

AN IMPERIAL VIEW.

Finally there is the fact that for the first time in history the Imperial Conference, composed of the Prime Ministers of all the British Dominions overseas, devoted its undivided attention for one of its sessions to the consideration of Imperial air routes and the co-operation of the various Dominions in the organisation of such routes. As Sir Samuel Hoare has so often said, flying as a means of communication is of greater importance to the British Empire than to any other World Power. And the recognition of this fact by the component parts of the Empire is in itself enough to give 1926 a definite place in history.

One only hopes that there will be as many good things to say at the end of 1927. The prospects for everybody concerned with aviation are at any rate very much better than they were a year ago, and so one wishes all the readers of *THE AEROPLANE* a very Happy and Prosperous New Year.—C. G. G.

the King and a very large number of other congratulatory telegrams were received and transmitted.

The Hercules was christened the *City of Delhi* by Lady Irwin, wife of the Viceroy of India.

De Havilland Hercules and the Bristol Jupiter engines proved themselves to be thoroughly reliable and well equal to their task.

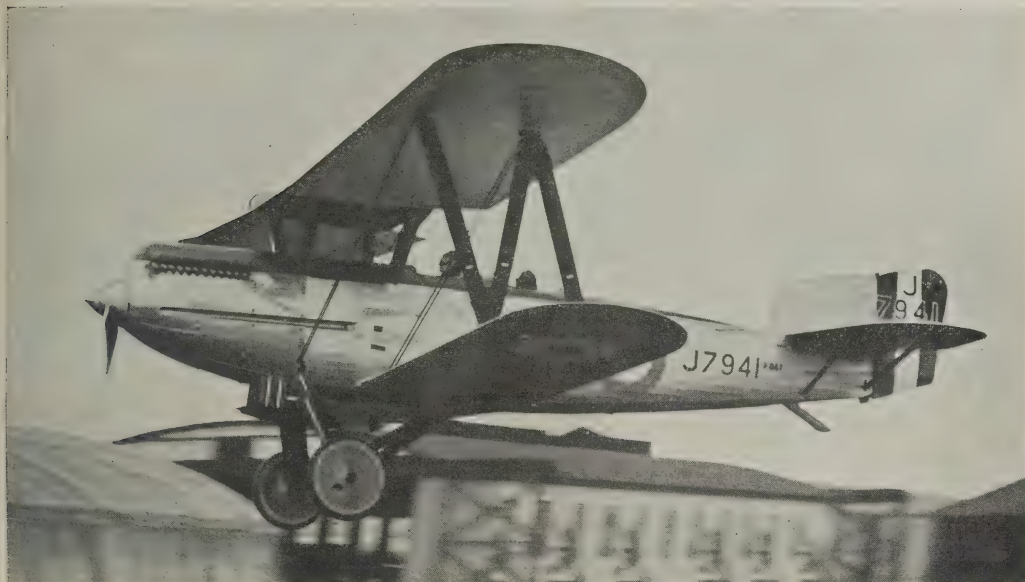
WITH BANJULELE BEYOND BAGHDAD.

At 16.36 hours (Indian time) on Jan. 8, Mr. T. Neville Stack and Mr. B. S. Leete arrived at Drigh Road, Karachi, from Charbar, thus completing their original intention of flying to India. As they now talk of the "Flight towards the Far East" in their correspondence it is presumed that they propose to continue their flight until their banjulele strings give out.

It will be recalled that they left Stag Lane on Nov. 15



AT BAGHDAD.—Here is seen the D.H. Moth, G-EBKU, after having flown from Stag Lane by Mr. B. S. Leete, being received at Hinaidi aerodrome by members of No. 55 Sqdn., R.A.F., Mr. Leete's old Squadron.



"Flight" Photo.

An Impression of the FAIREY "FOX" day bomber.

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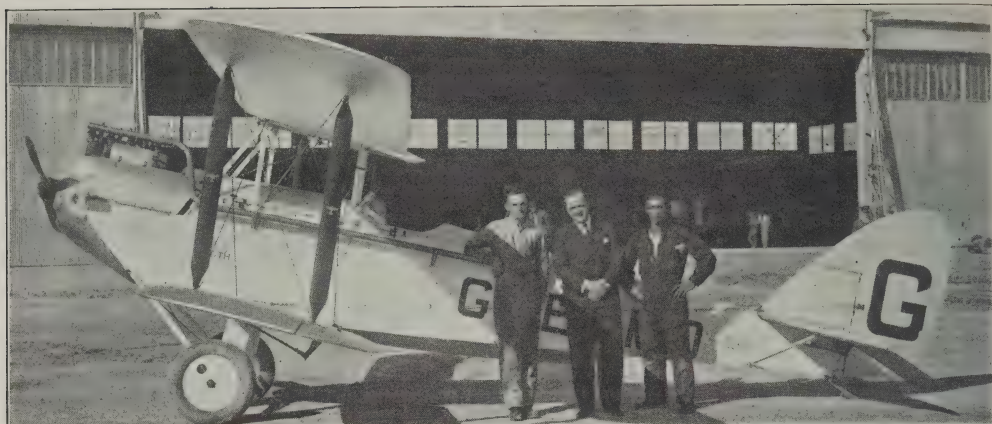
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



IN BAGHDAD.—The red and white King's Cup Moth, G-EBMO, on Hinaidi aerodrome after its flight from Stag Lane. On either side of Mr. T. Neville Stack are two airmen of No. 70 Squadron, Mr. Stack's old Squadron, who were responsible for the cleanliness and airworthiness of the Moth during its stay at Baghdad.

on two standard D.H. Moths (A.D.C. Cirrus II engines) and reached Baghdad on December 17.

On Dec. 27 they arrived at Bushire where they awaited the arrival of the D.H. Hercules with Sir Samuel Hoare on board.

On Jan. 4 they left for Bandar Abbas at 03.00 hours. They passed over Linga at 06.40 hours and landed at Bandar Abbas at 07.46 hours.

At 11.00 hours the same day they left for Jask.

On Jan. 7 they left Charbar for Pasni, Baluchistan, but had to return to Charbar, owing to engine trouble.

On Jan. 8 they again left Charbar at 10.40 hours (Indian time) and arrived at Karachi at 16.35 hours.

Their flight, throughout, has been one of outstanding merit.

With two standard Moths, both of which had done a considerable amount of flying before the beginning of the flight, they set out to fly towards the East with the minimum of spares, landing on the aerodromes that happened to be on their route and buying their petrol as they proceeded. Bearing in mind the reliability of their machines and engines they decided that any trouble met with could be dealt with by themselves, so that although they have had to carry out the duties of navigators and mechanics as well as pilots, their most important task has been that of combatting the weather and navigating.

Their flight across the Mediterranean, from Naples to Malta and from Malta to Khoms, involving in all something like 500 miles of overseas flying, in bad weather, was a particularly fine piece of navigation.

Again they earned the distinction of being the first two civil aviators to cross the Syrian desert from Cairo to Baghdad, 861 miles, via the Air Mail route, flying nearly all the time against adverse winds.

The performance of the Moths has impressed everyone, and Mr. Stack's exhibition of trick flying on the all-white King's Cup machine at the Baghdad Races on Dec. 19 was the subject of a special leader in *The Baghdad Times*. This article concludes as follows:—

Perhaps the outstanding impression left on our minds was one of wonder that so much can be achieved with such a small aeroplane, and an engine with a nominal horse-power of only 26 (there are bigger engines in many motor-cars in Baghdad). We were immensely grateful to Mr. Stack for a most delightful exhibition, and those of us who had the pleasure of witnessing it must now be more firmly convinced than ever that only the worst of bad luck could possibly prevent Mr. Stack and his colleague from achieving all their aims in the adventurous and gallant journey which they are now undertaking.

CIVIL AVIATION IN INDIA.

The following extract from a memorandum by the Indian Air Board appeared in *The Times* of Dec. 21, 1926:—

The Board state that their object has been to suggest a practicable and consistent policy which will enable India and Indians to participate in the business of commercial air transport and the development of civil aviation generally. Regret is expressed that the policy of Indian control of all aviation activities within its own area was not followed in the case of the Karachi air base, and it is suggested that when financial conditions permit consideration should be given to its purchase from the British Government. The time has come when the Government of India should accept the principle of subsidising commercial air services from Indian revenues, subject to the conditions that Indian capital should be invited to come forward and that facilities be given for the training and employment

of Indian pilots and other personnel. The Board recommends that not only should the present requests of the British Air Ministry for assistance in ground organisation in regard to the aeroplane route and the airship flights to India be fully met, but additional facilities granted; that the air station at Karachi should be modernised at least to cover the modified requirements of the Air Ministry, and that the provision of meteorological information should be regarded as a national responsibility for which no charge should be made either to the British Government or to the operating companies. Emphasis is laid on the favourable conditions in India for commercial air transport; the general visibility is good, and large commercial centres are situated at considerable distances from each other.

The definite recommendations put forward in regard to internal services deal first with possible services with relatively small types of airship within India itself. When the airship experts visited India last year they selected sites for subsidiary mooring masts at Bombay, Calcutta, Madras, and Rangoon, but the Indian Air Board do not suggest any immediate action except, perhaps, in regard to Bombay. The selected site at Calcutta already belongs to the Government, and the Board recommend that the Madras and Burma Governments should be urged to reserve the lands there selected as airship bases against future development. They state definitely that a mooring mast will be needed at Bombay as soon as the Imperial airship service starts, and that commercially Bombay will be more important than Karachi, although climatically and technically Karachi may be more suitable. In any case, they think a subsidiary service between Karachi and Bombay will be required.

The Board recommend that active steps should be taken to establish a seaplane service between Calcutta and Rangoon. The Government must accept the principle of a subsidy for such service, and should call for tenders on the undermentioned conditions:—That the Government should construct and equip bases and lease them to a company or levy landing and housing charges, as was being done by the British Government; that a company should be registered in India with rupee capital; and that the company be required to afford training and opportunities for employment to Indians in all branches of its work. Other routes which should be surveyed, with the intention of developing them as the demand arises, are from Bombay to Calcutta, from Karachi to Bombay and Calcutta, and, possibly, from Karachi to Lahore and Northern India.

THE KHARTUM-KISUMU AIR LINE.

On Dec. 30 Capt. T. A. Gladstone, the organiser of the new Khartum-Kisumu Air Line, left Heliopolis Aerodrome for Khartum in an R.A.F. aeroplane, for the inauguration of the route to be opened on Jan. 3.

On Jan. 2, while the D.H.50 seaplane (Jupiter engine), known as the "Pelican" was being tested on the Blue Nile at Khartum, it met with a mishap. In taxiing the machine struck some floating or submerged object, with the result that the bow of the port float was ripped open.

The Air Ministry immediately offered the loan of a seaplane with which to begin and operate the service until the repairs to the "Pelican" are completed.

It is hoped that the first flight to Kisumu will take place early in February.

THE SPANISH WEST AFRICAN FLIGHT.

On Dec. 25 the three Dornier Wal seaplanes (two Rolls-Royce Eagle engines each), which left Melilla on Dec. 10 to fly to the island of Fernando Po, which is politically part of Spanish West Africa, arrived at the latter place, having flown thence in nine stages.

The flight was commanded by Major Rafael Llorente and the pilots of the other two boats were Capt. Antonio Llorente and Ignacio Jimenez. Each machine carried three officers and one mechanic.

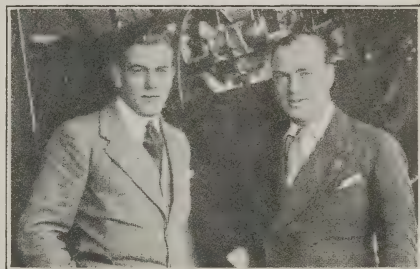


WORLD'S LONGEST LIGHT AEROPLANE FLIGHT.

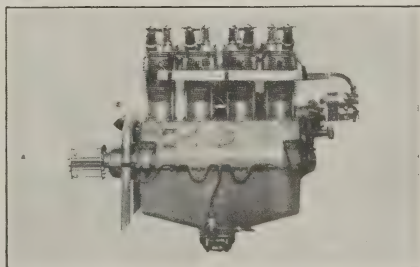
THE MACHINES used on this pioneer flight of LIGHT AEROPLANES are two DE HAVILLAND "CIRRUS-MOTH" machines equipped with an extra petrol tank to enable long distances to be flown non-stop as is necessitated by the stretches of sea and desert on the route. The illustration shows the machines starting from Stag Lane Aerodrome.



THE PILOTS are Capt. T. Neville Stack and Mr. Bernard M. T. S. Leete, and every credit is due to them for having successfully negotiated the difficulties encountered such as gales, sandstorms, stretches of desert, and sea crossings on land type machines, all of which go to prove the utility of the Light Aeroplane as a means of travel.



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THE ROYAL AIR FORCE.

The London Gazette.

Jan. 4.

GENERAL DUTIES BRANCH.—The following Plt. Offs. on probation are confirmed in rank:—A. Allen, E. S. Baverstock, M. R. Edmondson (Sec. Lt., R.A., T.A.), L. E. R. Fisher, M.C. (Lt., R.A.R.O.), C. H. Hockley, A. M. D. Howes, G. H. G. S. Jenkins, W. E. P. Johnson, L. T. Keens, F. L. Lawrence, P. G. Lucas, I. G. Martin, A. L. Mortimer (Sec. Lt., R.A., T.A.), K. C. Netherton, S. Pritchard-Barrett, H. J. G. E. Prond, B. F. O. Smith, R. H. C. Taylor, E. D. Turner (Nov. 8, 1926); C. F. Ashton (Nov. 9, 1926); E. L. Burslem (Nov. 10, 1926); W. R. Baird (Nov. 29, 1926); U. S. Mackay (Nov. 30, 1926).

Flt. Lt. A. T. Laing is placed on half-pay, scale B, from Dec. 28, 1926, to Jan. 15, 1927, inclusive; Flt. Lt. C. R. Smythe takes rank and precedence as if his appointment as a Flt. Lt. bore date July 1, 1926, immediately below Flt. Lt. Hugh Nelson on the gradation list. Reduction to take effect from Dec. 23, 1926.

Flt. Lt. A. C. Randall, D.F.C., is dismissed the service by sentence of General Court-Martial (Dec. 23, 1926).

MEDICAL BRANCH.—H. Penman, M.B., is granted a S.S. comm. as a Flg. Off. for three years on the active list, with effect from and with seniority of Oct. 8, 1925, and is seconded for civil employment from Oct. 8, 1925, to Oct. 7, 1926, inclusive. (Substituted for the notification in the Gazette of Oct. 26, 1926.)

RESERVE OF AIR FORCE OFFICERS.—Flt. Lt. P. A. de Fontenay, D.F.C., is cashiered by sentence of General Court-Martial (Dec. 23, 1926).

PRINCESS MARY'S R.A.F. NURSING SERVICE.—The following Staff Nurses are promoted to the rank of Sister:—Miss R. E. C. Polus (Oct. 4, 1926); Miss L. H. Hardy (Oct. 30, 1926); Miss O. Suddaby (Nov. 2, 1926); Miss C. E. Holden (Dec. 4, 1926); Miss U. F. C. Henson (Dec. 27, 1926).

Jan. 7.

GENERAL DUTIES BRANCH.—The following Flt. Cadets having successfully passed through the R.A.F. Cadet College, Cranwell, are granted perm. comms. as Plt. Offs. with effect from and with seniority of Dec. 11, 1926:—J. Clarke, W. C. Cooper, T. C. Dickens, J. C. A. Johnson, V. Q. Blackden, J. Norwood, C. W. Dicken, P. M. Watt, A. M. Watts-Read, P. C. I. Elderton, W. N. Blain, R. J. D. Brown, B. M. Cary, G. Francis, E. C. Lewis, V. B. J. Jackson, G. J. L. Saye, P. L. A. Berthon, H. B. Maugham, R. P. Teale, J. Marson, G. F. Lewis, P. L. P. Marett, H. R. Sarel, T. J. Arbutnot, G. F. Whistondale.

The following are granted perm. comms. in the ranks stated:—Flt. Lt. J. W. F. Merer (Nov. 1, 1926); Flg. Off. A. R. Perry (Sept. 18, 1926).

The following Plt. Offs. are promoted to the rank of Flg. Off. (Nov. 14, 1926):—F. B. Tomkins, W. R. J. Spittle, E. G. H. Russell-Stracey, S. C. Parker.

The following are transferred to the Reserve, Class A:—Flt. Lt.—R. S. Martin (Jan. 3). Flg. Offs.—G. M. Trundle (Jan. 3); F. J. Phillips (Jan. 6).

Plt. Off. on probation G. Carleton resigns his S.S. comm. (Dec. 25, 1926). The following relinquish their S.S. comms on account of ill-health (Jan. 5):—Plt. Off. J. G. Chamberlain; Plt. Off. on probation C. Pitt-Hardacre. The S.S. comm. of Plt. Off. on probation F. E. Liddell-Reynolds is terminated on cessation of duty (Jan. 5).

ACCOUNTANT BRANCH.—The following Plt. Offs. on probation are confirmed in rank and promoted to the rank of Plg. Off. (Dec. 7, 1926):—D. C. Stone, C. L. Dook, A. E. Fairs, M.C., J. P. Cave, A. L. Derry, W. F. Quilliam, J. Lambie, H. Crowther.

MEDICAL BRANCH.—M. D. Rawkins, M.B., B.S., is granted a S.S. comm. as a Flg. Off., for three years on the active list, with effect from and with seniority of Dec. 20, 1926.

CHAPLAINS BRANCH.—The Rev. K. C. H. Warner, D.S.O., M.A., is granted a S.S. comm. as a chaplain, with the relative rank of Sq. Ldr. (Jan. 1).

RESERVE OF AIR FORCE OFFICERS.—R. L. Green is granted a comm. in Class B, General Duties Branch, as a Flg. Off. on probation (Jan. 4); Plt. Off. F. J. Wright relinquishes his comm. on account of ill-health (Jan. 5).

Appointments.

Week ending Jan. 10.

GENERAL DUTIES BRANCH.—Group Captain A. D. Warrington-Morris, C.M.G., O.B.E., to R.A.F. Depot, Uxbridge, pending posting on transfer to Home Estab., 4/12.

Squadron Leader C. C. Darley, A.M., to H.Q., India, 23/12.

Flight Lieutenants J. S. Chick, M.C., A.F.C., to Marine Aircraft Experimental Estab., Felixstowe, 23/12. H. W. Woollett, D.S.O., M.C., to No. 24 Sqn., Kenley, 4/1. S. P. Simpson, M.C., to R.A.F. Cadet College, Cranwell, 14/1. W. A. K. Dalzell, to C.F.S., Wittering, 15/1. S. H. Ware, to Station Commandant, Hinaldi, 3/12.

H. Norrington, to H.Q., Coastal Area, 14/1. W. S. Allen, to Station H.Q., Andover, 28/1. C. H. Flinn, to No. 4 Armoured Car Coy., Iraq, 17/12.

Flying Officers (Hon. Flt. Lt.) W. B. O. Fox, to No. 12 Sqn., Andover, 9/9. E. B. Forster, to No. 30 Sqn., Iraq, 11/12. G. I. C. Peacocke, to Aircraft Park, India, 8/12. A. W. Rowbotham, to Stores Depot, Iraq, 4/12. H. N. Davies, to Inland Water Transport, Iraq, 13/12. C. J. Collingwood and H. H. Brooks, to No. 1 F.T.S., Netheravon, 4/1. J. Harston, to R.A.F. Staff College, Andover, 2/12. F. V. Beamish and R. P. P. Pope, D.F.C., to No. 5 F.T.S., Sealand, 4/1. H. W. Raeburn, to No. 2 F.T.S., Digby, 4/1. T. H. Perry-Keene, to R.A.F. Cadet College, Cranwell, 4/1. K. C. Baker, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 12/12.

Pilot Officers J. F. Griffiths, to No. 24 Sqn., Kenley, on appointment to a S.S. Comm., 3/12. W. M. C. Kennedy, to No. 58 Sqn., Worthy Down, 4/1. J. G. D. Armour, to C.F.S., Wittering, 4/1. E. B. Steedman, to No. 1 F.T.S., Netheravon, 4/1.

MEDICAL BRANCH.—Squadron Leader H. S. C. Starkey, O.B.E., M.D., M.A., to H.Q., Iraq, 13/12.

STORES BRANCH.—Flight Lieutenant L. A. Lavender, to Air Ministry, Directorate of Equipment, 7/12. Flying Officers L. V. Hirst, to No. 1 School of T.T. (Apprentices), Halton, 29/12. J. R. R. Harvey, M.M., to R.A.F. M.T. Depot, Shrewsbury, 29/12. L. W. Park, to No. 23 Sqn., Henlow, 29/12. C. S. Whellock, to No. 99 Sqn., Bircham Newton, 29/12. J. W. Huwastwaite, M.B.E., and M. F. Tomkins, to No. 1 Stores Depot, Kidbrooke, 29/12. J. W. Mitchell, to No. 100 Sqn., Spittlegate, 29/12. P. H. Burt, to Supply Services, Base Supply Depot, Iraq, 10/12.

CHAPLAINS BRANCH.—The Revd. K. C. H. Warner, D.S.O., M.A., to School of T.T. (Men), Manston, on appointment to a S.S. Comm. as Chaplain (C. of E.), 1/1.

An Apology.

To the Editor of THE AEROPLANE.

Sir,—We beg to tender you an expression of our great regret for the annoyance caused you by the misplaced line under the head of PROMOTIONS on page 10, column 2, of the issue of Jan. 5. There is nothing to be said for such a blunder, except that it constitutes a genuine "printer's error," for which we are very sorry indeed.

BONNER AND COMPANY LIMITED,

(Signed) A. BONNER, Director.

Jan. 8, 1927.

No. 45 Squadron R.F.C. and R.A.F.

No. 45 Squadron, Royal Flying Corps, was formed in March, 1916, and joined the 11th Wing, II Brigade, with headquarters at Cassel. A reference to the Squadron appears in the abbreviated history of the R.A.F. published by the Air Historical Branch. It says:—

One of the most interesting of the fights over the period occurred on 11th August (1916). Two machines of No. 45 Squadron crossed the lines at 6.35 p.m. under the clouds at 4,500 ft. over Dulemont. Whilst passing under a gap in the clouds two Albatros scouts dived on them, firing continuously. One of our machines replied and one Albatros burst into flames at 2,000 ft. from the ground and crashed into the canal immediately to the left of Dulemont. The second enemy scout attacked the second British machine from the side, and one bullet passed through the main petrol tanks, and wounded the pilot seriously in the back. The observer meanwhile got in a double drum at the enemy from very close quarters, and it went down and crashed near the first machine. The pilot of the British aeroplane then fainted and the machine got into a spin. The observer, unable to make the pilot hear, climbed over the side and forward along the plane to the pilot's cockpit and found the control lever wedged between his legs. He then pulled the pilot back and pushed the lever forward, and the machine came out of the spin and the pilot almost immediately recovered and eventually landed his observer safely near Poperinghe.

In October, 1917, No. 45 Squadron went with the British reinforcements to Italy with Nos. 34, 42, 28 and 66 Squadrons comprising the VII Brigade, R.F.C. Nos. 45, 28 and 66 Squadrons were equipped with Sopwith Camels and the other two squadrons with R.E.8s. The official history says:—

The fighting squadrons were kept hard at work and their superiority over the enemy scouts—chiefly of the Albatros type D.III—was proved time and again. On 12th January a patrol of three Camels engaged four Albatros scouts, destroying them all; while some ten days later



THE KING'S BIRTHDAY.—Vickers Vernons (two Napier engines) of No. 45 (Bombing) Squadron dipping in salute when flying past during the review at Hinaldi.

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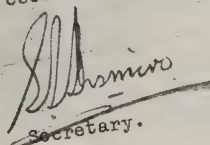
8th January 1927.

Sir,

I am directed by my Board to express their congratulations to you and your staff upon the success of the three "Hercules" aeroplanes in reaching their respective destinations according to the scheduled arrangements. In so doing they have achieved more than a passing triumph, for each flight was of greater duration than the other and culminated in the historic flight by Sir Samuel and Lady Maud Hoare from London to Delhi.

In addition to my Board's congratulations will you please accept their thanks for the great amount of work you and your staff have put into all the details of this undertaking. The punctual arrival and reliability will undoubtedly contribute to the public confidence in Imperial Airways' new service and stimulate the greatest interest in the subject of linking up the British Empire by air.

I am, Sir, Your obedient Servant,


Secretary.

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three Camels of No. 45 Squadron attacked a patrol of six D.11s, destroying three of them and driving off the remainder. All our machines returned safely on both these occasions.

No. 45 Squadron ceased operations in Italy on September 12, 1918. Describing the activities of the Camel Squadrons in Italy during 1918, the official history states:—

During the summer months the achievements of the Camel pilots were beyond all praise. The enemy were by now equipped with Albatros D.V. and Berg Scouts handled by skilful and resolute pilots, but their hardest efforts were of no avail against those of the R.A.F. On 12th July for instance two Camels attacked two formations of enemy scouts, 15 machines in all, destroying six of them and bringing one down out of control; both the Camels returned safely. During July alone no less than 72 enemy aeroplanes were destroyed, as against three of our own machines missing.

No. 45 Squadron joined the Independent Air Force on September 22, 1918.

The Squadron was disbanded on December 31, 1919, and re-formed on April 1, 1921.

On re-forming it was posted to Egypt under the command of Squadron Leader E. M. Murray, D.S.O., M.C.

In November, 1922, No. 45 Squadron went to Iraq and was stationed at Hinaidi, Baghdad, under the command of Squadron Leader A. T. Harris, A.F.C. During part of this period the Squadron was responsible for the Iraq half of the Cairo—Baghdad Air Route.

In September, 1924, the command was taken over by Wing Commander R. M. Hill, M.C., A.F.C.

According to the current Air Force List No. 45 (Bombing) Squadron is now awaiting transfer to the Middle East.

The R.A.F. Memorial Fund.

The quarterly report of the administration of the R.A.F. Memorial Fund shows that 266 cases were dealt with at the offices of the Fund between Oct. 1 and Dec. 31, 1926. The list of grants made to members past and present of the R.A.F. amounts to a total of £1,734 os. 9d. Of this sum £245 12s. 8d. was granted to the post-War R.A.F.

The Fleet Air Arm.

The Times of Jan. 8 states:—

A limited number of volunteers is required from the wireless telegraphist branch of the Royal Navy for duty as telegraphist air gunners with the Fleet Air Arm. Accepted candidates will be required to undergo a course in aircraft wireless sets and in aerial gunnery. Extra pay will be allowed to selected ratings at the rate of 1s. a day during the preliminary training, and thereafter at 2s. a day while detailed for the above duties.

H.M. coastal motor-boat No. 83 has been taken over by the Air Ministry for duties with the R.A.F. Experimental Establishment at Felixstowe. While the vessel is loaned to the Ministry, all expenses will be borne by that Department, and the R.A.F. will provide the necessary crew.

The New Cape Flight.

The following *Reuter* message appeared in *The Daily Telegraph* of Jan. 1:—

Preparations are already in progress for the R.A.F. South African (1927) flight, which is to start in March under the leadership of Air Commodore Samson, and is to consist of four Fairey IIIE machines from the 47th Squadron, each carrying a pilot and a passenger. The South African Air Force flight from the Cape is to meet the Cairo machines at Kisumu, and accompany them to the Cape. Ground parties left Cairo to-day under the command of Flight-Lieutenant G. T. Richardson (for Tanganyika), Flight-Lieutenant L. Eardley-Wilmot (for Kenya), and Flying Officer H. W. Weblin (for the Sudan).—*Reuter*.

R.A.F. SPORTS AND PASTIMES.

Rugby Football.

R.A.F. v. Guy's Hospital.—The R.A.F. were beaten by Guy's Hospital at Honor Oak Park on Jan. 5 by a goal to a try. The Air Force seem fated to meet Guy's in a morass and this year was no exception to the rule. The field of battle looked as if it had suffered from the more peaceful attentions of a plough after the first few minutes and the heavy going put fast three-quarter work out of the question and made most of the game a sort of dog-fight between the forwards. The ball must have been as heavy as lead and was obviously very difficult to handle. This was some excuse for the lamentable inability of most of the Air Force backs to kick into touch.

The first half-hour was fairly even with Guy's getting the better of the scrums chiefly owing to the R.A.F. packing too high. Guy's were beginning to look dangerous when Sq. Ldr. Russell relieved the pressure by finding touch from the centre of a general mix-up. The Air Force got the ball from the line-out and Flg. Off. Harvey made a fine run down the left wing. He drew Mr. Boyle, Guy's excellent full-back, and passed to Flt. Lt. Bryson who scored a try. The goal kick failed. Flg. Off. Harvey made another gallant effort on similar lines and a few minutes later broke away in another direction but both attempts were foiled by the Guy's defence.

Guy's started a ferocious attack from this point but they were cooled down by a couple of free kicks to the Air Force. They kept up the attack however and their left wing man was nearly in with a run which left Flg. Off. Brembridge standing, when Sq. Ldr. Russell came across, as the Navy would say, "at a rate of knots and sank the blighter."

The second half was chiefly dog-fight, mud, whistle and more dog-fight, but the Air Force pack got down better and held their own. The forwards also started some useful attacks in which Cpl. Christie, Flg. Off. O'Malley and Flg. Off. Beamish played particularly well. Flt. Lt. Chick did unexpected things at unexpected moments with some success, but was inclined to be off-side.

The Air Force lost some ground through loose hacking and Guy's forwards got the ball again. Guy's scored and converted. The Air Force forwards attacked again and kept on attacking until the end of the game but they were badly supported by the three-quarter line which broke down every time. Flt. Lt. Bryson got poor passes from Flt. Off. Norwood and owing to a damaged hand was unable to hold them.

On the whole the R.A.F. side shows considerable promise although none of the new caps distinguished themselves. With a few alterations the team should put up a very good show indeed.

The R.A.F. team was:—Wing Cdr. R. E. Saul, back; Flg. Off. G. D. Harvey, Flt. Lt. O. C. Bryson, Flt. Off. F. S. Hodder, and Flt. Off. C. H. G. Brembridge, three-quarter backs; Flt. Off. J. Norwood and Sq. Ldr. J. C. Russell (captain), half-backs; Flt. Lt. J. S. Chick, Flg. Off. P. G. Chichester, Flt. Lt. G. H. Maxwell, Flg. Off. F. V. Beamish, Cpl. M. G. Christie, Flg. Off. C. J. S. O'Malley, Flg. Off. J. G. Franks, and Flg. Off. A. Hesket, forwards.

Certain experiments are being made in the team to play Cambridge University at Cambridge on Jan. 19. On this occasion Sq. Ldr. Russell will play full-back. Flg. Off. Vines will play on the right wing. The halves will be AC. Massey (stand-off) and Flg. Off. O'Malley (scrum). Flg. Off. Beamish, who broke a rib at Swansea on Jan. 8, will not be able to play. The other two positions in the scrum will be filled by Flg. Off. Patch and Flg. Off. Reynolds.—C. M. MCA.

Meteorology.

In the House of Commons on Dec. 15, in reply to a question by CAPT. GARRO-JONES, the SECRETARY OF STATE FOR AIR said that the visit of Dr. J. Bjerknes, of Bergen, the Norwegian Meteorologist, had had most satisfactory results. He had come to London at the invitation of the Air Ministry in October, 1925, and had remained until last March. During that time daily conferences had taken place.



THE FIRST TEST.—The R.A.F. lost to Guy's Hospital on Jan. 5 by a goal to a try. This was the first of a series of matches to be played by the R.A.F. before they meet the Navy at Twickenham on Feb. 19. This photograph was taken very early in the game and gives an indication of the state of the ground at Honor Oak Park.

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IMPERIAL DEFENCE.

In an article on "The Problem of Imperial Defence" in the October issue of "The Journal of the United Service Institution of India," Lieut.-Col. R. H. Haining, D.S.O., R.A., gives a comprehensive survey of the present situation and makes some observations which will be new to the ordinary reader at any rate.

He points out that as a result of the War, 1914-18, the balance of power, a dominating principle, has shifted from Europe to the Pacific chiefly because of the effect of the war on the United States, which had been to increase her wealth and make her realise her power.

Another economic factor in the changed conditions of the present time was the question of fuel. Col. Haining says: "One of our greatest assets in the last war was our production of coal; we were enabled to trade on this to such an extent that not only as a condition of obtaining bunker coal did we make neutral nations carry cargoes for us as and where required, but also we were enabled to drive certain companies or even countries off the sea because they would not agree to our restrictions and were unable to obtain bunker supplies elsewhere." The substitution of oil fuel for coal in ships has increased their radius of action by 50 per cent. But only four per cent. of the world's supply of oil was found within the British Empire. Our commitments abroad had been increased by the necessity for protecting our oil supplies.

Col. Haining considers that Submarine Warfare and Aircraft have a very far-reaching effect on the problem of Imperial Defence. Submarines were of greater value to a nation with a weak, rather than to one with a strong Navy. Considering the scattered nature of the Empire, necessitating the despatch of a Fleet, in certain eventualities from the West to the East, and we were able to realise that the submarine had complicated our problems.

Aircraft for Imperial Defence must be considered from the point of view of its co-operation with other services. Every warlike operation in the future would probably require combined operation. The Navy and Army need eyes which the air alone could provide. The air arm needs transporting to its bases and when established needs protection. Col. Haining adds: "It is of course quite true that it is claimed that the defence of outlying portions of the Empire, or of territories for which the Empire is responsible, can be thoroughly undertaken by a force that is primarily employed in the air."

Col. Haining emphasises the point that air forces must be mobile. On the other hand, artillery observation machines must be with the guns in times of peace in anticipation of the need. Again, aircraft carriers are needed for co-operation with the Navy, but they might be the sole air support to cover a military landing. Defence against submarines was the business of the Navy, but defence against air attacks was the duty of the Air Force.

The author considers that taking into account the factors of distance and present air power France alone could attack us. No degree of improbability should prevent us from maintaining a scale of defence based on the most powerful air forces that could attack us.

Later in the article Col. Haining states: "Our Air Force gathers strength only for home defence, which out of the three constituents of the Imperial Defence problem, is the one least likely to materialise, but which appeals most strongly to the mass; of the strategical disposition of the Air Force for the maintenance of the Empire as a whole, little seems known, because, perhaps, little has been decided."

Discussing the defence of Imperial Communications, Col. Haining says that while this is in the main a naval question there is an increasing need for air protection of both air and sea routes. While the Navy and the Air Force need bases on the lines of communication, the Army will be required to hold these bases against attack.

In addition, Col. Haining lays special stress on the importance of the defence of the Suez Canal from Eastern aggression. He maintains that for this reason Egypt is essentially a problem which interests all European States and may be regarded as the key to the Eastern portion of the Empire and the strategic centre for the Empire Reserve, especially of aircraft.

Dealing with the situation in Mesopotamia, he says that the experiment of the maintenance of order by the Air, assisted by troops on the ground, was of interest because upon its success the future organisation of the defence of outlying parts of the Empire might depend. Col. Haining would do well to make a more exhaustive study of the operations of the Royal Air Force in Iraq before he again claims that an air force is defenceless on the ground.—C. M. MCA.

Lieut.-Col. R. H. Haining, D.S.O., R.A., the author of the article under review, has been selected to attend the first course of instruction at the Imperial Defence College.

TWO THOUSAND YEARS AGO.

"A Greater than Napoleon. Scipio Africanus." By Capt. B. H. Liddell Hart. With frontispiece and maps. 280 pages. Wm. Blackwood and Sons Ltd., Edinburgh and London. 12s. 6d. net.

Capt. Liddell Hart excuses himself, quite unnecessarily, for this contribution to Military History by explaining in his preface that no recent biography of Scipio exists; the first and last in English appeared in 1817 and is the work of a country clergyman who omits any study of Scipio as a soldier.

Capt. Liddell Hart's work will be of special interest to students of war because in describing the strategy and tactics of his hero's campaigns he finds parallels in our own history. One example is found when Scipio decides to take his army to Africa after his victories in Spain. He finds himself opposed by the Senate and curbed by political faction and jealousy. Eventually a compromise is effected, by which the Consul to whose lot Scipio fell might have permission to cross into Africa if he judged it to be for the advantage of the State.

Describing Scipio's organisation, the author says that the Senate refused him leave to levy troops. He built and launched in forty-five days no less than thirty warships. On board he embarked seven thousand volunteers. In Sicily he turned this unorganised band of volunteers into an effective expeditionary force. The author describes Sicily as Scipio's Shorncliffe Camp.

Dealing with the wider results of Scipio's methods of waging war, Capt. Liddell Hart says that it was one of his supreme merits that he obtained completely decisive results although lacking political control. He was the one exception to the rule that throughout the history of war the most successful of the great captains have been despots or autocrats.

Scipio was not only a great soldier. He was also a great diplomat. With a flash of sardonic humour Capt. Liddell Hart says:—"Scipio could have given points even to Colonel House as an ambassador of peace as a means to victory." After the Ætolian war, by diplomacy, he secured his lines of communication and released his army.

His moderation in his peace terms was remarkable, especially considering the completeness of his military successes.

His peace treaty after Zama is described as true grand strategy,—a peace of security and prosperity in which was sown no seeds of revenge. It resulted in fifty years of peace.

One more example of a parallel in our own history. In 202 B.C. we learn that this great general concerned himself with the resettlement of his soldiers and apparently he did make places fit for heroes to live in.

An interesting forecast of the modern doctrine of using increased fire-power in defence to replace man-power is illustrated in the description of Scipio's operations after the occupation of Tunis. He sighted the Carthaginian fleet when his own ships were unprepared for a naval battle. There was no time to clear them for action so he anchored them close inshore, and, protecting them by a four-deep row of transports lashed together, he laid planks from one to another, leaving narrow intervals for patrol boats to pass. He then manned the transports with a thousand picked men armed with a very high proportion of weapons, particularly missiles.

Capt. Liddell Hart's book will be enjoyed by the amateur, understood by the most elementary student of military history and keenly appreciated by hardened war-makers.

C. M. MCA.

A BLASTED ORPHAN.

"The Orphan of Space," by Reginald Glossop, 310 pp. G. MacDonald and Co. Ltd., Southampton Row, N.W.5.

In an introductory note to this book Mr. Glossop says, "Repton did not teach me how to write stories." Repton should be duly grateful for these few kind words. For Mr. Glossop has written a dreadful book.

It is supposed to be a warning to Western Europe against the Soviet Republics of Russia, in alliance with China and Germany. And the story is complicated by the machinations of a gaseous Chinese god who floats about space in a sort of metal egg.

Mr. Glossop's hero is a Flight Commander, a serving officer in the R.A.F. (Why this particularly poisonous type of hero is always given a commission in the R.A.F., I don't know. It ought to be actionable.) There is also a thoroughly ill-bred American heroine and an impossibly chivalrous Chinaman.

The adventures of these three and their friends during a Bolshevik attempt to start a World-War, make up the book. And those who read it have only themselves to blame.—C. M. MCA.

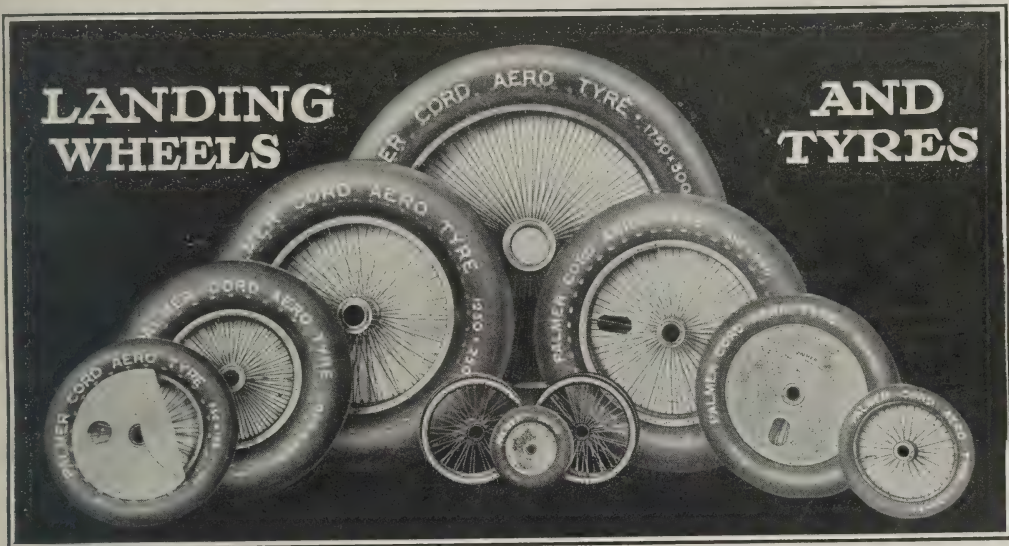


PALMER



LANDING WHEELS

AND TYRES



STANDARD SIZES.

Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore				Length	Bore				Length	Bore	
		m/m	m/m	m/m			m/m	m/m	m/m			m/m	m/m	m/m
375 × 55	168	111.12	25.4	Central	700 × 100	112	150.	38.09	Central	1000 × 150	210	185.	60.32	Central
300 × 60	16	111.12	25.4	Central	"	176	178.	44.45	Central	1000 × 180	148	220.	80.	Central
450 × 60	30	89.	31.75	Central	"	179	178.	55.	132/46	"	149	185.	55.	Central
"	172	130.	38.09	Central	650 × 125	119	178.	55.	132/46	"	155	220.	66.67	Central
575 × 60	21	160.	28.	Central	"	147	178.	55.	Central	"	166	185.	55.	125/60
"	80	150.	38.09	104/46	"	188	120.	34.92	Central	900 × 230	107	185.	55.	Central
"	186	120.	34.92	Central	750 × 125	77	178.	44.45	132/46	"	108	185.	55.	125/60
"	190	150.	38.09	Central	"	92	185.	55.	135/50	"	128	220.	66.67	Central
650 × 65	78	178.	44.45	132/46	"	95	185.	55.	Central	"	137	250.	80.	Central
"	79	178.	44.45	Central	"	99	178.	38.89	132/46	"	157	185.	80.	Central
"	100	178.	38.09	132/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
"	101	178.	31.75	132/46	"	176	178.	44.45	Central	1100 × 220	134	220.	66.67	Central
600 × 75	21	160.	28.	Central	"	179	178.	55.	132/46	"	136	250.	80.	Central
"	180	150.	38.09	104/46	800 × 150	161*	185.	55.	135/50	"	192	185.	60.32	Central
"	186	120.	34.92	Central	"	162*	185.	55.	Central	975 × 225	194	185.	55.	125/60
"	190	150.	38.09	Central	"	163*	185.	66.67	135/50	"	133	250.	80.	Central
700 × 75	78	178.	44.45	132/46	"	169†	185.	55.	135/50	"	154	304.8	101.6	Central
"	79	178.	44.45	Central	"	177	185.	55.	135/50	1250 × 250	133	250.	80.	Central
"	100	178.	38.09	132/46	"	183	185.	55.	Central	"	154	304.8	101.6	Central
"	101	178.	31.75	132/46	"	211*	185.	60.32	135/50	1500 × 300	115	304.8	101.6	Central
700 × 100	77	178.	44.45	132/46	1000 × 150	167	185.	55.	125/60	"	126	304.8	152.4	Central
"	92	185.	55.	135/50	"	174	250.	80.	Central	1750 × 300	139	400.	152.4	Central
"	95	185.	55.	Central	"	182	185.	55.	Central	"	191	350.	150.3	Central
"	99	178.	38.89	132/46	"	187	220.	66.67	Central	1750 × 350	193	400.	125.	Central
					"	201	185.	60.32	125/60					

*Wheels Nos. 161, 162, 163 and 211 are of stronger type than the other wheels for 800 × 150 tyres. †Wheel No. 169 is fitted with Ball Bearings. Grease gun equipment is now a standard fitting on all wheels.

THE PALMER TYRE LIMITED,

Contractors to the Admiralty, the War Office, and the Air Ministry.

100-106, CANNON STREET, LONDON, E.C.4.

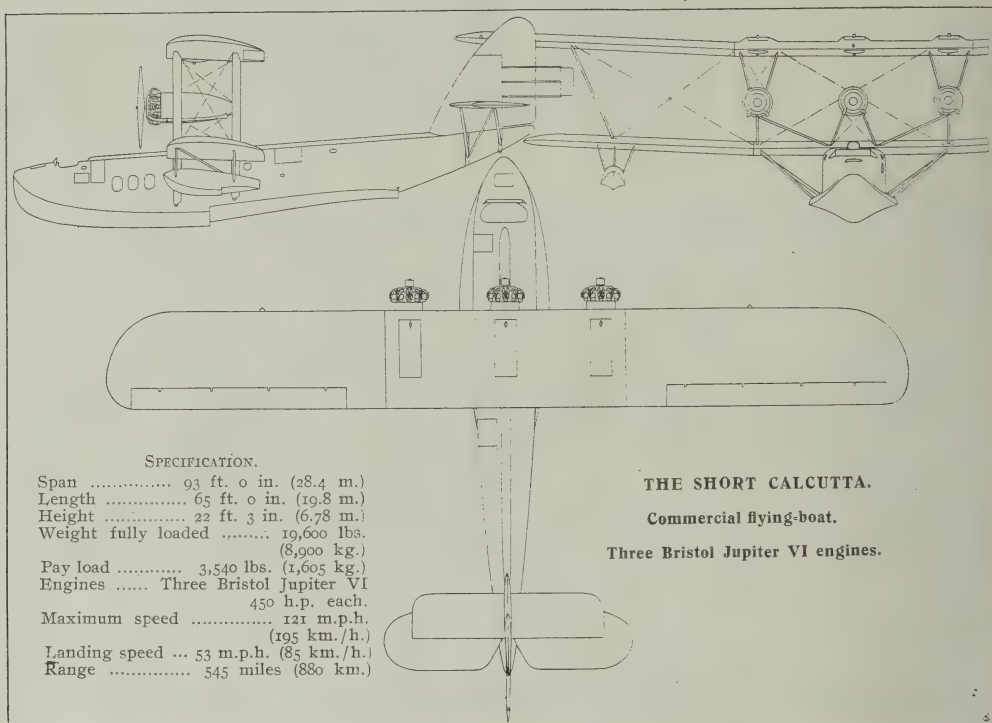
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Telegrams:—
"Tyricord, Cannon, London."
D/ND

Telephone:—
City 1477 (Two Lines)
(365)

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE SHORT CALCUTTA FLYING-BOAT.



Short Bros. Ltd. have under construction at their Rochester Works two large passenger-carrying flying-boats of a type known as the Calcutta, which are destined for operation by Imperial Airways Ltd.

The Calcutta is an all-metal machine fitted with three Bristol Jupiter VI engines and equipped for fifteen passengers with luggage, a crew of three and fuel capacity for 500 miles. The Calcutta is to be fitted with a very complete navigational equipment, including a direction-finding wireless equipment of the Bellini-Tosi type, so that it may be assumed that it is intended to operate on some route of a less local nature than the present Southampton-Channel Islands service now run by Imperial Airways.

THE HULL.

The hull—entirely of duralumin—is built up on a series of annular frames to which the skin sheets are rivetted. Light intercostal members are arranged fore and aft between frames, and serve only as local stiffeners to the skin which itself is the main longitudinal stress-carrying member of the structure.

This system of construction is essentially that adopted for the construction of the earliest Short all-metal fuselages, and it has since been adopted for a number of highly successful flying-boat hulls built by this firm. It has the advantage that material which would otherwise constitute the longitudinal members can be added to the skin plating which consequently can be made more robust and less liable to local damage.

The lines of the hull are the result of experiment with models in Short Bros.' tank, checked by full-scale tests on a number of full-sized hulls, and the firm is confident that this hull will prove to have a very low resistance, to be clean on the water, and free from any tendency to porpoise.

In the extreme bows of the hull is the usual cockpit with a hatch for mooring and the like purposes. Here are stowed mooring ropes, anchor, etc. Behind this are two side-by-side seats each fitted with complete flying controls. Behind these seats is the wireless compartment.

The cabin extends from behind the wireless compartment to the trailing edge of the wings. It is extremely roomy—particularly so in head-room—and is well lighted by large glazed port-holes on each side. Entrance to the cabin is afforded by a hatchway in the top of the hull at the fore end of the cabin, and, where a landing stage is available, the boat can be brought close up and passengers may enter or leave the cabin without intermediate boat transport.

Seats are arranged in five rows of three abreast, and ample room for free movement of the passengers is available.

Arrangements, including a cooking stove, to permit of serving meals are provided, and the hull being all-metal and all petrol being carried outside, it will be permissible for passengers to smoke.

Behind the cabin is the usual lavatory, and behind this again a baggage compartment. This has its own hatch for loading and unloading.

THE WINGS.

These are of the biplane type, with a top wing of considerably greater span than the lower. The chord of top and bottom wings is equal, and there is no stagger.

Each wing is in three sections. Top and bottom centre-sections, with the engine mountings, form one structure and to this the outer wing sections on each side are attached. The lower wing centre-section is braced from its ends by steel tubes to the hull in the usual way.

Top and bottom centre-sections are united by sets of three struts, one set above each spar at each side, arranged in the form of a Y when seen in front elevation.

The two outboard engines are carried from the junction of the three struts forming each Y. The central engine is carried on struts rising from the lower wing, but not continued to the upper wing.

Three main fuel tanks are built into the upper centre section, one over each engine.

The outer sections of the wings are connected by a single pair of struts on each side which rake outwards and upwards and by the usual streamline wire cross-bracing.

Ailerons are fitted to the top wing only. They are balanced by the inset-hinge method, and do not extend quite to the wing tips.

The wing spars are of a corrugated box-section built up from laminated pressings of sheet duralumin rivetted together. This type of spar is the result of extensive experiment, and has been found to be most efficient and at the same time easy to produce. The ribs are lattice girders of duralumin tube.

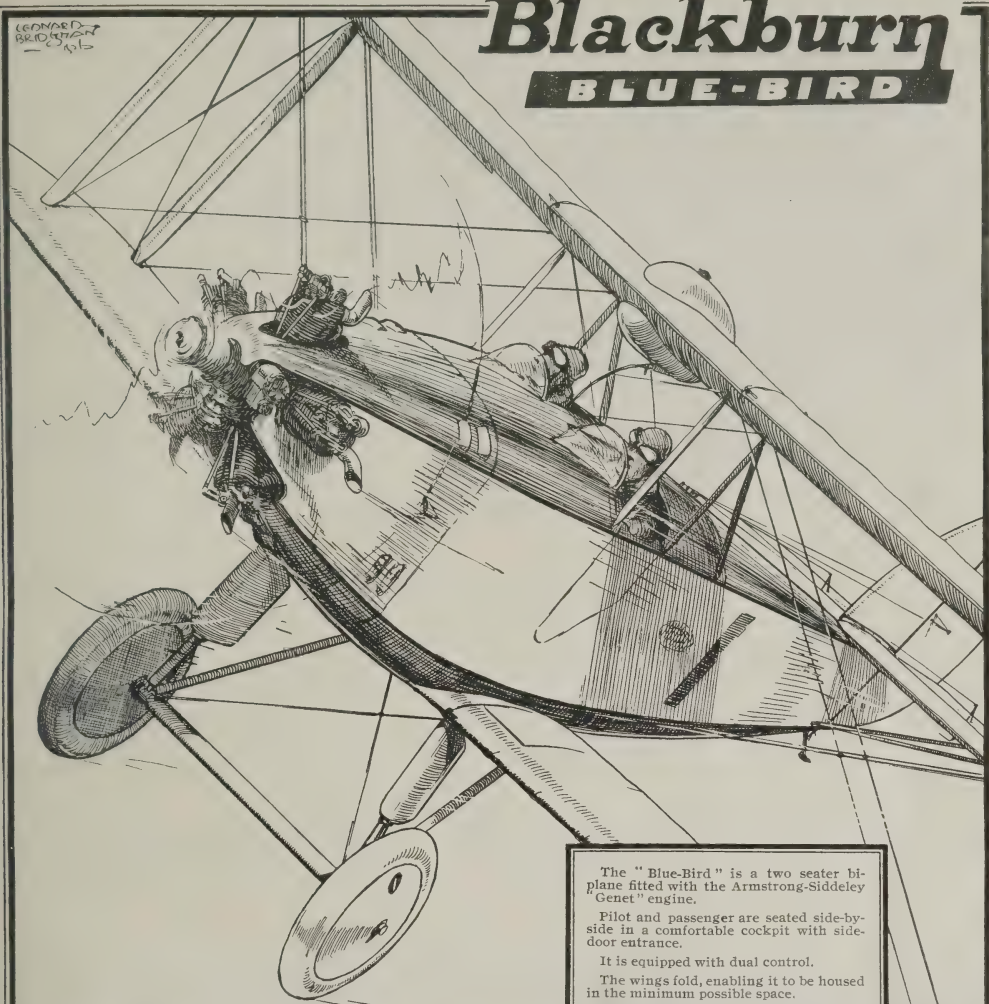
THE TAIL.

The tail unit is of the monoplane type with a single central rudder and fin. The horizontal tail surfaces are carried well above the hull by a framework within the fin and consist of a fixed tail plane and large divided balanced elevators. The tail plane is adjustable from the pilot's seat.

The rudder is balanced, and is in addition fitted with a servo-control of a type similar to the Flettner rudder system. This consists of a small auxiliary rudder, carried from but some way behind the main rudder, which steers the rudder proper much as the rudder steers the machine as a whole.

Blackburn

BLUE-BIRD



The "Blue-Bird" is a two seater bi-plane fitted with the Armstrong-Siddeley "Genet" engine.

Pilot and passenger are seated side-by-side in a comfortable cockpit with side-door entrance.

It is equipped with dual control.

The wings fold, enabling it to be housed in the minimum possible space.

Either for the private owner or the flying school the "Blue-Bird" is ideal.

It has behind it 17 years' experience of aircraft design and construction, and the firm's reputation for sound British workmanship.

BBBBBBBBBBBBBBBBBB

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WINNER OF

The **GROSVENOR CUP**

(PILOTED BY: **SQN. LDR. LONGTON, D.F.C., A.F.C.**)

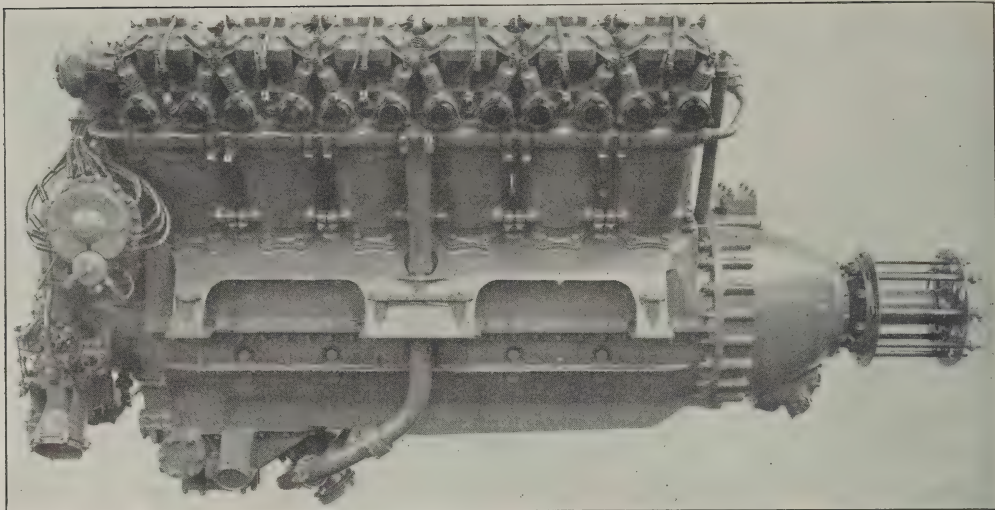
BLACKBURN

AEROPLANE & MOTOR CO. LTD.

LEEDS.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



THE ROLLS-ROYCE CONDOR SERIES IV.—An engine of 650 h.p. for high-speed aircraft. Unlike other recent engines of this make the Condor IV has no reduction gear.

THE ROLLS-ROYCE CONDOR IV.

The Rolls-Royce Condor Series IV is the direct-drive engine which has been produced for use in high-speed machines where the standard Condor III with reduction gear gives a rate of airscrew revolution too low to permit of the use of the most efficient airscrew.

The photograph here reproduced shows that the Condor IV differs very little indeed from the Condor III. The only noticeable differences are the absence of the gear case at the front end, and the fact that the crankcase is fitted with cast-on feet for ordinary engine-bearers instead of the ball-joint front-end mounting, and the sprung-link rear-end mounting used on the Condor III.

The leading dimensions of the Condor IV are similar to those of the Condor III, and the weight is some 80 lbs. less.

SPECIFICATION.

Type ... 60° Vee, 12 cylinders.	Normal output ... 650 b.h.p.
Bore 5.5 inches (140 m/m.)	at 1,900 r.p.m.
Stroke 7.5 inches.	Weight dry 1,250 lbs.
(190 m/m.)	(568 kg.)
Compression 5.3/1	

THE PASSING OF THE D.H.4 IN AMERICA.

The Douglas Company, of Santa Monica, Cal., better known as the designers and constructors of the Douglas "Round-the-World Cruisers," have recently delivered their fifty-first mail aeroplane to the U.S. Post Office Department.

These machines now replace the D.H. equipment used on the Government-operated trans-Continental Air Mail route since its inauguration in 1918.

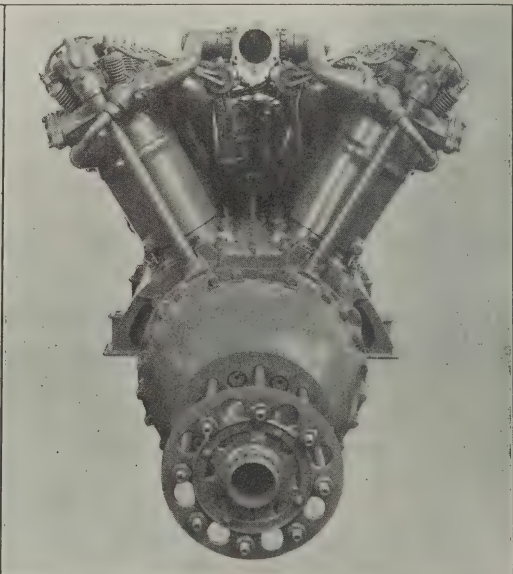
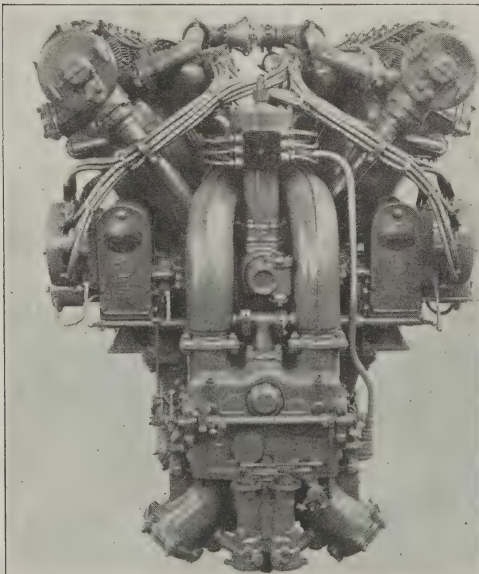
This order for over fifty commercial aircraft is claimed to be the biggest ever placed in the U.S.A. And one thinks one is safe in saying that it is the largest ever placed in the world for civil aircraft of one particular type.

The entire fleet was produced in less than 150 days.

A certain number have been equipped with wings of increased area for use over that portion of the route which crosses the Rockies.

In addition the Douglas Company have delivered over one hundred O.2 two-seater observation aircraft to the U.S. Air Corps. These machines are now replacing the D.H.4b equipment used by the U.S. Army since 1918.

They have also supplied several machines of this type to the Mexican Government.



THE ROLLS-ROYCE CONDOR SERIES IV.—Rear and front views of the engine showing that the Condor IV compares favourably with other recent high-powered engines in compactness and low frontal area.

First Charge without Cost to Purchaser

*Entirely of
British
Origin and
Workmanship.*



*Patented and
Trade Mark
Registered in the
Chief Countries
of the World.*

Tungstone adopts advanced manufacturing policy in selling all complete Batteries or individual Plates in a dry partially first charged condition.

All plates after being fully formed at works are given a first charge partially completed making them electrically safe, reliable and workable. In this advanced electrical state the risk to plates getting damaged or their life shortened or creating other first charging troubles are reduced to an absolute minimum. Tungstone's first partial charge can be completed at short period on bench or car.

Tungstone Starting Battery Plates automatically become Electrically active when pure Brimstone acid of Sp.G. 1285 is added.

ALLOW TWO HOURS FOR ACID TO SOAK INTO PLATES, WHICH WILL THEN GIVE SUFFICIENT POWER FOR LIGHTING AND HORN REQUIREMENTS.

New partially charged individual Plates can replace worn out Plates in a complete Battery and will forthwith work

Other Batteries of any make except Tungstone are generally despatched formed only. The purchaser has to pay the cost of the first charge, or if ordered to be factory charged it is an extra cost.

Ideal for Hot Climates

Individual Plates or Complete Batteries are sent Overseas with a first free partial charge and in a dry state without Acid and can be kept for an unlimited period. For Hot Climates use Acid of 1240 Sp. Gravity.

Makers' plates when Only Formed

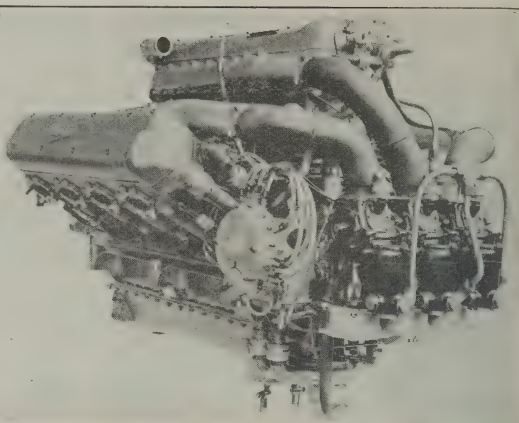
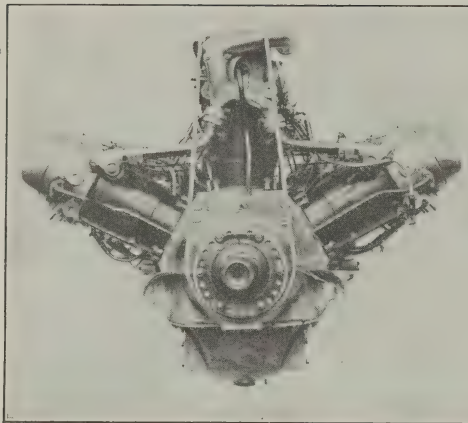
ARE IN A DELICATE AND UNRELIABLE STATE OF MANUFACTURE.

This is confirmed by all the maker's very carefully worded and detailed instructions issued and emphasised for working the first charge. If not perfectly first charged, as Makers always insist upon, the plates' working usefulness and life may be very seriously shortened.

It is well known that on first charge a slight variation of currents or an increase of charging rate, before a certain time limit has been reached or completed, are vital causes that will and do create many serious troubles in a Battery which has only been formed at the Manufacturer's works and plates may be irretrievably damaged or in a lesser degree injured so that the best electrical results cannot be secured under ordinary working conditions. Many are the defects traceable to an incorrect first charge.

T.M. 73

TUNGSTONE ACCUMULATOR CO., LTD., St. Bride's House, Salisbury Sq., London, E.C.4



THE NAPIER LION SERIES VIII.—A direct-drive engine rated at 525 h.p. at 2,350 r.p.m.

THE NAPIER LION SERIES VIII.

The photographs here produced show the Napier Lion Series VIII engine—a direct-drive high-compression engine for use on high speed aircraft.

As may be seen this engine retains the main characteristics of the Standard type of Lion engine, differing in having no reduction gear, and in the arrangement of auxiliary details.

The most noticeable of these differences is the removal of all three carburettors to the rear end of the engine, where they are well concealed behind the cylinder blocks so that they neither increase the overall frontal area of the engine nor interfere with the fairing of the nose of the machine to which the engine is fitted.

The normal rating of the Lion Series VIII is 525 b.h.p. at 2,350 r.p.m., at which output the proportional weight of the engine is 1.75 lbs. per h.p. The average actual output is considerably higher than the rated output, and at average maximum power the weight per h.p. is only 1.62 lbs.

SPECIFICATION.

No. of cylinders	12	Width overall ...	3 ft. 6 in.
Bore	5.5 m. (141 m/m.)		(1.06 m.) approx.
Stroke 5.125 m. (130 m/m.)		Height overall ...	3 ft. 3 in.
Compression ratio ...	6.25/1		(0.99 m.) approx.
Normal output ...	543 b.h.p.	Fuel consumption (max.)	
	at 2,350 r.p.m.		.527 lbs. (240 grammes)/
			h.p./hour
Max. output	567 b.h.p.	Oil consumption (max.)	
	at 2,585 r.p.m.		.038 lbs. (17 grammes)/
			h.p./hour
Weight dry	920 lbs.		
	(417 kg.)		
Length overall ...	5 ft. 1 in.		
	(1.55 m.) approx.		

A TWO-STROKE AERO-ENGINE?

Report No. 239 of the United States National Advisory Committee for Aeronautics describes a series of experiments made at the Langley Field Research Laboratory with a single-cylinder two-stroke engine.

The engine employed was the special single-cylinder experimental unit which has been designed for general research work. This unit uses a standard Liberty engine cylinder in the ordinary way. For these tests a Liberty cylinder was fitted with special inlet ports uncovered by the piston at the bottom of the stroke, and with a fuel valve injecting petrol into an air trunk leading to these ports. Both valves in the cylinder head were made to act as exhaust valves.

Fuel was supplied to the injection valve by a cam operated plunger pump, and air to the inlet trunk by a separately driven Roots blower.

At 1,300 r.p.m. the unit developed 53 b.h.p. for a fuel consumption of 0.61 lbs. per h.p. hour when supplied with air at 53 lbs. per sq. in. Approximately 3 h.p. would be absorbed by the blower, leaving an output of 50 b.h.p. net. The maximum output of a Liberty cylinder at the same r.p.m. is 27.5 b.h.p., so that 85 per cent. increase in power output was achieved.

The fuel consumption in this case is high because the friction h.p. of the experimental engine is high, and it is estimated that a multi-cylinder engine with the same type of cylinders would develop 1 b.h.p. for 0.57 lbs. of petrol.

It is also probable that the efficiency could be improved appreciably by using cylinders designed for the purpose instead of modified Liberty cylinders. But in any event the possibility of so nearly doubling the output of a cylinder of

given size, even at some sacrifice of fuel economy, may lead to remarkable developments, particularly for machines of high speed.

AN L.F.G. CLAIM AGAINST VICKERS LTD.

On Dec. 16 the Anglo-German Mixed Tribunal heard the claim by the L.F.G. (Luft-Fahrzeug-Gesellschaft), against Vickers Ltd. for the sum of £100,000 in respect of the use by Vickers Ltd. of patents, information, and materials for the construction of non-rigid airships before the war.

The L.F.G. were the owners of the Parseval airship patents and designs, the British rights in which were acquired by Vickers Ltd.

The Tribunal decided that the L.F.G. had failed to bring their claim within the terms of the Treaty under which the Tribunal was established and that consequently the claim must be dismissed, with £100 cost against the claimants.

On a claim by Vickers Ltd. against the L.F.G. for £12,597, money prepaid for an airship and for certain materials, which could not be delivered owing to the outbreak of war, the Tribunal awarded £11,991, with accrued interest, and £100 costs.

A counterclaim by the L.F.G. for £6,030 in respect of royalties for airships built by Vickers Ltd. to L.F.G. designs was struck out.

AWARDS TO INVENTORS.

The Royal Commission on Awards to Inventors on Monday, Dec. 13, continued the hearing of the claim by Mr. Norman Thompson in respect of the invention of the "negative tail" as a means of securing satisfactory trim and stability in flying-boats.

Mr. Thompson claimed that in the early days of the war he communicated to the Technical officers of the Air Department, Admiralty, the idea of the negative tail, and that as a result it was applied to all flying-boats constructed for the Royal Naval Air Service.

Group Captain C. R. J. Randall gave evidence that, in his opinion, the Norman Thompson device made flying-boats practicable, and after its adoption it was incorporated in all flying-boats constructed under Admiralty supervision.

Group Capt. Randall was still under cross-examination when the hearing was adjourned until Jan. 17.

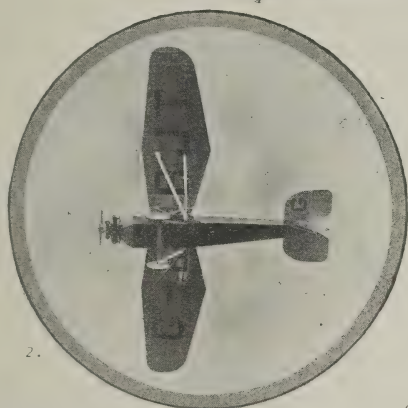
SHELL SPIRIT AGAIN.

The following telegram has been received by Shell-Mex Ltd. It is the more valuable as it is entirely unsolicited. It comes from M. Mittelholzer, who is on a flying voyage of exploration from Zurich to Cape Town and back on a Dornier Mercator seaplane fitted with a 450-600 h.p. B.M.W. engine.

Have arrived at Cairo en route from Zurich to the Cape, after having covered 3,200 km. Stop. The main part of the success of my enterprise so far has been due to your Super-Shell Heavy Aviation Oil and to your Shell Aviation Spirit which has given me perfect service in my engine in all circumstances your perfect ground organisation has also made things exceedingly simple for me along the route so far.

It is interesting to note that Messrs. Stack and Leete, who have flown from London to Bushire in D.H. Moths, made the most difficult stage of their journey on Shell Spirit. They started their Shell era at Malta and flew 200 miles over the Mediterranean to Khoms and all along the coast of North Africa to Palestine on straight Shell, without benzol or other dope.

It is understood that they have found that Shell suits their engines best and they will use this spirit in preference to other brands wherever they can buy it.



1. The Yeovil Bomber.
2. The Westland Widgeon.

Safety, Speed & Comfort IN WESTLAND MACHINES

For eleven years we have been designing and building aeroplanes, and to-day the reputation of Westland Aircraft for safety, speed and comfort is world-wide.

Our designs comprise all types from private single seaters to large twin engined bombing machines.

In these days road travel is anything but pleasant. By owning a light passenger machine you can recapture the joys of travel. We intend to publish shortly particulars of Widgeon III, a light passenger Monoplane which will be within reach of the man of moderate means. The machine folds, and will go comfortably into an ordinary garage. Widgeon II, the parent machine was the fastest machine in the Grosvenor Cup Race this year, with an average speed of 105.5 m.p.h.

We are supplying numbers of machines to the Royal Air Force both at home and abroad. We have our own 4 ft. wind channel for testing models, and our extensive aerodrome is situated by the side of the works for testing the finished machines. Enquiries are solicited for aircraft for all purposes.

WESTLAND AIRCRAFT FOR BUSINESS OR PLEASURE.

WESTLAND AIRCRAFT WORKS

(Branch of Petters Limited),

YEOVIL

ENGLAND.

THE JOHNSON TWIN-60 BIPLANE.

A very interesting aeroplane of the general utility type has just been produced by the Johnson Aircraft Corporation, of Dayton, Ohio, and is known as the Johnson Twin-60. It derives its name from the fact that it is equipped with two Bristol Cherub engines, the added normal horsepower of which total 60.

It has been designed from the point of view of both the "professional" and the owner-pilot, and apart from the choice of the twin engine arrangement giving excellent visibility and comfort, every effort has been made to cut down maintenance and operational costs to a minimum.

The fuselage is of welded steel tubes. The two cockpits are equipped with dual control, either of which can be removed at will, and the rear cockpit is fitted with a door allowing for easy access to what is normally the passenger's seat. Map and log-book cases, tool box and luggage compartment, are built-in features.

All controls in the cockpits are enclosed, and in addition, brake-pedals, operating on the landing wheels, either independently or in unison, are provided.

The tail unit is of welded steel tube construction. The two fins and balanced rudders are mounted on the elevator tips in the slipstream of the engines, and it is found that this arrangement reduces end loss and has the effect of increasing the aspect ratio of the tail.

The normal tail skid has been replaced by an orientable wheel sprung on rubber compression discs.

The wings are all wood with solid spruce spars and built-up plywood ribs. Ailerons of ample area are fitted to both top and bottom planes.

The two engine mountings provide a three-point suspension for the engines and their accessories. The oil system, including pressure gauges, is integral with the engine unit. The other engine instruments are mounted on the engine unit and are easily read from the cockpits. The entire engine units can be removed in a few minutes, and are so designed that the engines may be tested on the ground on their own mountings.

The two petrol tanks are carried in the top plane above the engines, and have a total capacity for eight hours. Feed is entirely by gravity. Two Curtiss-Reed airscrews, five feet in diameter, have ample clearance, and are well protected from weeds and "jay-walkers."

The undercarriage is of the Vee type and the front legs are fitted with rubber-in-compression suspension and rebound absorbers.

The Johnson Twin-60 has been flown by several different test pilots and with varying loads. With a useful load of 630 lbs., more than 100 lbs. more than its normal load, it has

successfully flown on one engine. It has also made turns in either direction on one engine with this load and with the "live" engine running at normal r.p.m. Its take-off thus loaded was 150 ft. and with a normal passenger it has taken off in 25 ft. On landing it has pulled up in only twice its own length, the brakes having no tendency to make the machine "ground-loop."

SPECIFICATION.

Span	28 ft. 0 in.	Weight empty	800 lbs.
Length	21 ft. 0 in.	Useful load	520 lbs.
Height	7 ft. 10 in.	Weight loaded	1,320 lbs.
Dihedral	2°	Speed max.	85 m.p.h.
Incidence	2°	Speed min.	32 m.p.h.
Wing chord	3 ft. 9 in.	Speed landing	25 m.p.h.
Stagger	1 ft. 0 in.	Range	480 miles.
Wing area	194.23 sq. ft.		

THE JUPITER ENGINE IN FRANCE.

At the close of 1926 Jupiter engines were in use on every one of the French commercial air routes, with the sole exception of certain routes served by the Lignes Farman, who use Farman engines.

Within the past few weeks thirty-four Farman Goliath bombers, each fitted with two Jupiter engines, have been delivered by the Farman company to the Polish Government by air. The journey from Paris to Warsaw, a distance of 1,200 miles, has been successfully completed by each machine, without trouble of any kind.

Two squadrons of Farman Goliath-Jupiter bombers used in the recent war in Morocco, have now returned to France. All the engines had exceeded 175 hours' running without overhaul, and the general condition was good. This is a record which has never been equalled by any other type of engine in the Farman Goliath biplane.

AN IMPORTANT APPOINTMENT.

Fig. Off. H. J. T. Saint, D.F.C., has been appointed chief test pilot to the Gloster Aircraft Co. Ltd. in place of the late Mr. Larry Carter.

Mr. Saint was in 1919 senior pilot to Air Transport and Travel Ltd. On May 1, the day on which civil aviation was first permitted after the war, he was flying to Bournemouth with some newspapers and with Mr. D. M. Greig (the general manager of A. T. and T.) as passenger, on the first registered civil machine (D.H.9 G-EAAA) when he crashed on the hills behind Portsmouth. He fractured his jaw and sustained minor injuries.

Since 1922 he has been a test pilot at the R.A.E. Experimental Station at Farnborough.

A SHORT DINNER.

On Friday, Jan. 7, the Drawing Office and General Staff of Short Bros. (Rochester and Bedford) Ltd., of Rochester, held their third Annual Dinner at the Sun Hotel, Chatham.

Among the guests present were Sir F. K. McClean, A.F.C., the Mayor of Rochester, Mr. H. O. Short, and Mr. McIsaac, the resident D.T.D. representative.

The toast to the Firm was proposed by Mr. F. Wyborn and replied to by Mr. H. O. Short.

The toast to the guests was proposed by Mr. A. Gouge, the firm's designer, and replied to in a very humorous speech by Sir F. K. McClean, who reviewed his early associations with the Short machines in 1909. His remarks concerning the "Double Dirty," the "Field Kitchen" or "Triple Dud," the real forerunners of multi-engined aircraft, and other early machines, caused much amusement.

A very clever eight-page programme, profusely illustrated by members of the drawing office, was specially produced for the occasion.

THE GLOSTER.

One congratulates the Gloster Aircraft Company Ltd. on the Christmas Number of its House Organ, *The Gloster*. It consists of 86 pages, which include some extremely interesting articles and pictures.

There is a very interesting review of the Schneider Trophy Contest by Mr. H. P. Folland (Please Mr. Folland if you will look at the thing you will see that it is a Trophy and not a Cup).

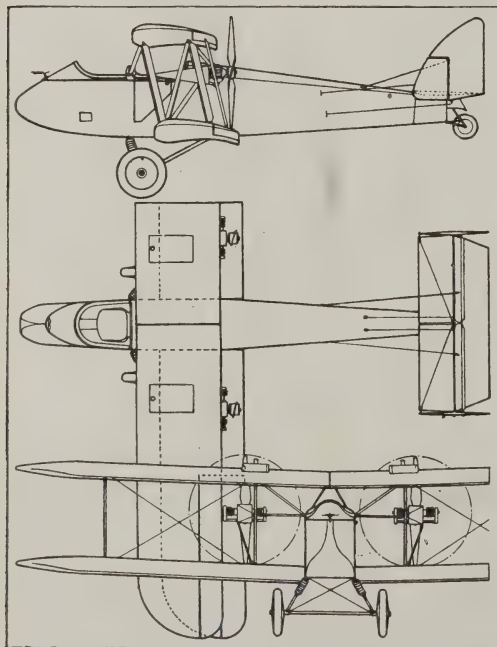
The launching of the Grebes from the ancient R.33 is fully described and illustrated and the Paris Aero Show is well described by Mr. F. Radcliffe, B.Sc., A.R.Ae.S.

Those who have not seen this issue are advised to beg, borrow, buy or steal a copy, which is well worth reading.

A NEW GLIDING RECORD.

On Dec. 18 Dr. Ettore Cattaneo, on a glider designed by Ing. Abate, succeeded in covering a distance of 11.5 kms. (7.14 miles) at the Campo dei Fiori, near Varese.

The flight beats the existing World's Record for distance covered in a straight line (Class D—Motorless Aircraft) previously held by Lient. Thoret, who on Aug. 26, 1923, covered a distance of 8.1 kms. (5.03 miles) on a Bardin glider during the 1923 Vauville Meeting.



THE JOHNSON TWIN-60 (two Bristol Cherub engines).

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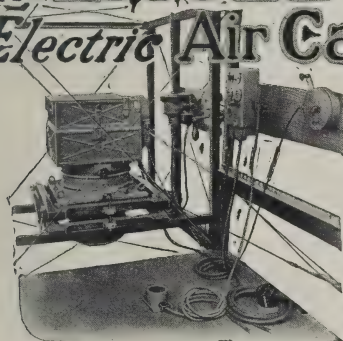
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ON THE NILE.—M. Mittelholzer's Dornier Mercur (450-600 h.p. B.M.W.) refuelling with Shell petrol and oil at Cairo en route to Cape Town.

BRITISH AIR RACING IN 1927.

A meeting of the Racing Committee of the Royal Aero Club was held on Dec. 20, 1926, when there were present:—Lieut.-Col. M. O. Darby, in the Chair, Lieut.-Col. W. A. Bristow, Major R. H. Mayo, Capt. C. B. Wilson, M.C., Mr. Howard T. Wright, and the Secretary.

The Committee considered the Racing Programme for 1927. It was decided to concentrate on a three-day meeting, during the August Bank Holiday week-end, the Races to include the King's Cup and Grosvenor Challenge Cup.

The possibility of holding these races from Bournemouth was considered. The expert reports on the Aerodrome on the Racecourse and the surrounding districts were submitted, together with the proposals of the Racecourse Company to take down the fencing and jumps and to acquire additional land to increase the alighting area. These proposals are now under consideration.

[Bournemouth is a charming place for a meeting of the more or less go-as-you-please, pleasant-Sunday-afternoon type. But the area is too small for fast machines and the country all around is utterly unsuitable for any machine which is not as manoeuvrable and as slow-landing as a Moth or Avro.]

The mere fact that the Racing Committee considered such a proposition and did not turn it down at once shows that British Air Racing is in for yet another year of futility and mess and muddle. Thanks to the imbecility of the Aero Club we have suffered such humiliation ever since the end of the War 1914-18 in International Sporting Flying that really it hardly seems worth anybody's while to try to reform the sport. All we can do is sit still and wait till so many young and intelligent sportsmen have acquired aeroplanes of their own that they will take the game into their own hands and oust the people who have brought British Air Racing into contempt.—C. G. G.]

AERONAUTICAL EDUCATION IN AUSTRALIA.

The Sydney University Extension Board have arranged a series of twenty lectures on Elementary Aeronautical Engineering. A synopsis of some of the lectures has been forwarded to THE AEROPLANE. This synopsis unfortunately is undated and it is impossible to discover whether it refers to a series which has been delivered, or to a series which is to be delivered in the future. The former hypothesis seems the more plausible.

The course is divided into three sections. The first section is not represented in the synopsis, but is presumably concerned with aerodynamics. Section II deals with the Elements of Aeroplane Design, and Section III with Aircraft Engines.

The lecturers in Section I are Wing Cdr. L. J. Wackett, D.F.C., B.Sc., and Mr. T. D. J. Leech, B.E., B.Sc. (Lecturer in Civil Engineering, Sydney University); in Section II, Wing Cdr. Wackett and Mr. H. J. Vogan, B.E. (Lecturer in Civil Engineering, Sydney University); and in Section III, the lecturer is Mr. W. H. H. Gibson, B.E., B.Sc. (Lecturer in Mechanical Engineering, Sydney University).

From the specimens of lectures in Sections II and III it appears that this course is of an eminently sound and practical nature, arranged in a manner likely to attract intelligent and well-educated young engineers to the study of aeronautical problems.

THE ROYAL AERONAUTICAL SOCIETY.

A very attractive programme of lectures has been arranged for the second half of the lecture session 1926/27.

On Thursday, Jan. 20, Mr. H. Glauert will lecture on "The Theory of the Auto-giro." Mr. Glauert is probably the greatest British authority on modern aerodynamic theory, and this paper ought to be of very great interest.

Mr. A. H. R. Fedden, of the Bristol Co., is to lecture on "Supercharging for Aero-engines," on Tuesday, Feb. 1. Mr. Fedden needs no introduction as an authority on aero-engines generally, but the fact that he has done a very large amount of experimental work with supercharged engines has hitherto been concealed, thanks to the

policy of the Air Ministry in keeping British experimental lights well under a bushel.

Major R. H. Mayo will lecture on "The Design and Operation of Commercial Aircraft" on Thursday, Feb. 13. Major Mayo's position as Technical Adviser to Imperial Airways suffices to guarantee that he has something worth saying on this subject.

Mr. L. W. Bryant is to discuss "The Spinning of Aeroplanes." This subject is one of very wide interest, and all those familiar with recent R. and M.'s will recognise Mr. Bryant as an authority upon it. Mr. Giblett is to discuss "Line Squalls," on Mar. 17. These disconcerting meteorological phenomena are not very common in this country, but are sufficiently so to render them well worth study.

On Thursday, Mar. 1, Mr. E. G. Richardson lectures on "Recent Model Experiments in Aerodynamics."

On Apr. 28, Major R. E. Penny, of the Air Ministry, will discuss "Seaplane Design." As Major Penny has been attached to the section of the Air Ministry concerned with seaplane design since such a section has existed this paper should be of more than usual importance.

Finally, in May, Prof. Prandtl, of Göttingen, will deliver the Wilbur Wright Memorial Lecture. THE AEROPLANE does not profess to be an adequate medium for the dissemination of knowledge of so highly technical a nature as that with which Prof. Prandtl is chiefly associated, but it can claim that it is not to blame if any of its readers have failed to recognise Prof. Prandtl as the world's greatest authority on aerodynamic science.

OFFICIAL NOTICE.

Data Sheets.—Arrangements have been made for the issue, early in 1927, of Data Sheets. These sheets will contain abstracted information of use to Ground Engineers, Draughtsmen and all those engaged in the practical side of the industry. These data sheets will be issued at frequent intervals and it is to be hoped that all those who wish for such information will write to the Secretary, so that those sheets for which there is a demand are printed as soon as possible.

The Data Sheets will be printed on an 8 x 5 in. page, convenient for note books, with a wide left-hand margin for insertion in the note books. They will enable anyone in the industry to collect together, in a convenient, condensed and usable form, much of the information now scattered in various works of reference, B.E.S.A. specifications, private note books, and the like.

It is hoped that those who have any specialised or unpublished information of any kind which will prove useful to other members of the industry will communicate with the Secretary, with a view to its publication.

The Data Sheets will be issued to all members of the Society upon application. Any further information with regard to them can be obtained on application to the Secretary.

In addition to the programme of formal lectures set out above, the Royal Aeronautical Society is arranging a series of informal discussions which will be held in the Library of the Society at 7, Albemarle Street.

These discussions will be open to all members and to any of their friends. The opener of the discussion and an opposing speaker will each be given a quarter-of-an-hour in which to state their respective cases. Thereafter members of the audience will be limited to five minutes per speech, though there is no rule against the same individual speaking more than once.

The first of these informal discussions has been arranged for Tuesday, Jan. 18, at 6.0 p.m. The discussion will be on "Oil Cooling" and will be opened by Mr. A. H. R. Fedden.

The second will take place on Tuesday, Feb. 15, when Mr. Dipon will open the subject of "Materials with Special Reference to Corrosion."

THE WESTLAND AIRCRAFT SOCIETY.

The Secretary of the Westland Aircraft Society notifies that the Society has now become the Yeovil Branch of the Royal Aeronautical Society. Apparently the Westland Society will now have the privilege of paying away most of its subscriptions in the form of capitation fees to the Royal Aeronautical Society, and of organising all its own activities precisely as heretofore.

The Yeovil Branch of the Royal Aeronautical Society (*née* Westland) has organised a very interesting programme of lectures for the early part of 1927. This is divided into two sections, namely lectures of general interest and lectures for ground engineers.

IN THE EARLIEST DAYS OF AVIATION—

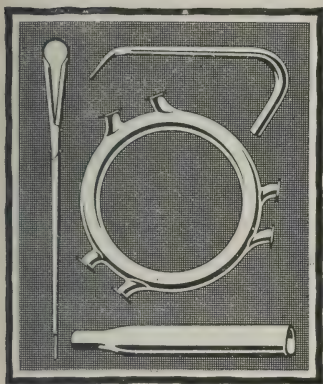
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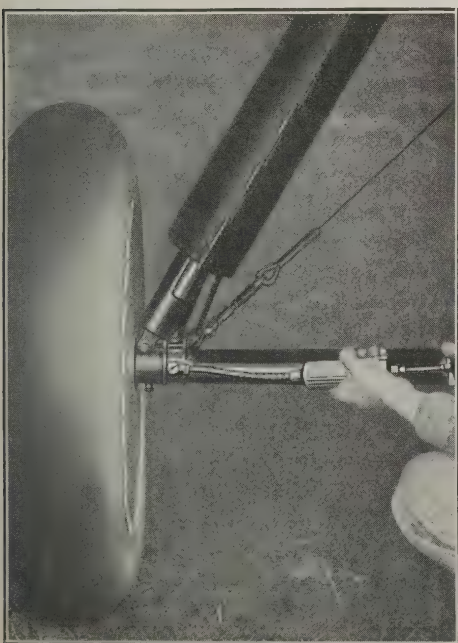
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Those for ground engineers are mainly of an elementary but essentially practical type and will be printed as soon as possible in pamphlet form for sale to members and others. Those who wish to obtain copies should communicate with the Secretary, Mr. V. S. Gaunt, The Westland Aircraft Works, Yeovil.

The subjects are as follows:—

Jan. 5, Mr. Sutcliffe on "Testing of Materials." Jan. 12, Mr. Gibson on "Breakages, Strains, and their Repair, etc." Jan. 19, Mr. Carey on "Other Aircraft Timbers." Jan. 26, Mr. H. Burdett (of The Improved Liquid Glues Co.) on "Glues." Feb. 2, Mr. Somers, A.I.D., on "Engine Installation, Maintenance and Overhaul from the G.E.'s Point of View." Feb. 9, Mr. Hopcroft (of Messrs. Firths) on "Aircraft Steels." Feb. 16, Mr. J. E. Charlton (of Messrs. Smiths) on "Aircraft Instruments." Feb. 23, Mr. Goswell on "Workshop Processes." Mar. 2, Mr. Sweetman and Mr. Millman on "Workshop Processes." Mar. 9, Mr. Robson on "Compasses—Installation and Swinging." Mar. 16, Filt. Lt. F. J. Hooper on "Wireless Installation." Mar. 23, Capt. Keop on "Equipment Installation." Mar. 30, Mr. Widgery on "The Wind Tunnel."

The lectures of general interest will be as follows:—

Jan. 7, Sq. Ldr. Sir C. J. Quintin Brand, K.B.E., D.S.O., M.C., D.F.C., on "My African Flight." Jan. 28, Mr. A. P. Young, A.M.I.E.E. (of the British Thomson Houston Co.) on "Magnets." Feb. 4, Mr. A. H. R. Fiddell, F.R.Ae.S. (of the Bristol Aeroplane Co.) on "Air Cooled Engines." Feb. 18, Mr. H. B. Wynn Evans, M.B.E., R.C.N.C. (Hon.) (Air Worthiness Section) on "Airships." Mar. 4, Filt. Lt. B. C. H. Cross, D.F.C. (Felixstowe) on "Some Practical Aspects of Flying-Boat Development." Apr. 1, Major Lt. P. Openshaw, M.A. (Test Pilot, Westland Aircraft Works) on "Test Flying." Apr. 22, Mr. W. E. Park, A.R.C.Sc., on "Construction of Airscrews."

The Society now numbers 124 members and considerable interest is being shown in its activities.

THE JOURNAL OF THE INSTITUTION OF AERO NAUTICAL ENGINEERS.

As from the beginning of this year the Institution of Aeronautical Engineers has abandoned the issue at more or less regular intervals of the Minutes of Proceedings and has begun to publish a monthly Journal.

This Journal will combine the reports of papers originally published in the Minutes of Proceedings, with the Notices to Members hitherto published separately, and will include articles on subjects of aeronautical interest over and above the matters so far dealt with by the Institution's publications.

The first number of the Journal, that for January, 1927, is now available and may be acquired at a cost of 2s. by non-members. It contains a note concerning the President of the Institution—Lt.-Col. J. T. C. Moore Brabazon, M.C., M.P.—illustrated by an excellent portrait, some account of the Institution itself, notices of forthcoming events, etc., reports of two papers, one on "Metal Clad Airships," by Mr. R. H. Upson, and one on "Reminiscences of Ten Years Ago," by Mr. L. A. Wingfield, and the first instalment of an article on "Civil Aviation," by Mr. N. J. Hulbert.

The Journal is excellently printed on good paper and should do much to enhance the prestige of the Institution. Copies may be obtained from the Institution of Aeronautical Engineers, 34, Broadway, Westminster, S.W.1.

THE SECRETARY OF THE I.Ae.E.

Mr. W. Villa Gilbert, M.I.Ae.E., has resigned the post of Honorary Secretary of the Institution of Aeronautical Engineers, and the position has been filled by Mr. Norman J. Hulbert, who has for some months been Acting Honorary Secretary.

THE FLYING CLUBS.

The London Aeroplane Club.

Report for week ending Jan. 9.

The total flying time for the week was 23 hrs. 10 mins. Unfortunately one of the solo Moths was out of action during the week-end and many soloists were disappointed.

The following members had flying instruction:—C. G. Miesegans, E. D. Moss, J. H. Saffery, G. H. Saxon Mills, E. J. B. King, L. R. Winter, G. M. Randall, R. Macdonald, A. J. Richardson, H. B. Maddocks, H. Solomon, Lieut.-Cdr. Mackintosh, E. R. Wilson, M. P. Susman, F. C. Elford, J. J. Hofer, H. O. Eugenheim, A. W. G. Eady, D. H. P. Esler, Miss Fletcher, H. M. Samuelson, F. Clarkson.

The following members flew solo:—O. J. Tapper, Lieut.-Cdr. Mackintosh, H. Spooner, C. E. Murrell, S. O. Bradshaw, R. Macdonald. The following members had joy-rides:—Miss Mackintosh, D. A. Wilson, E. G. Denton.

The Club has acquired G-EBKT to replace G-EBNP, crashed in November last, and delivery will be taken this week.

The Lancashire Aero Club.

Report for week ending Jan. 8.

Total flying time for the week was 12 hrs. 25 mins., made up as follows:—

Dual with Mr. Brown:—Messrs. Slater 30 mins., Dickinson 20 mins., Forshaw 20 mins., Gatterall 20 mins., Newton 20 mins., Keays 20 mins., Anderson 15 mins., Dobson 15 mins., Goodyear 15 mins., and Fallon 15 mins. With Mr. Cantrill:—Messrs. Leigh 20 mins., and Forshaw 10 mins.

Solo:—Messrs. Birley 1 hr. 10 mins., Michelson 50 mins., Slater 30 mins., Twemlow 25 mins., Leeming 20 mins., Hardy 15 mins., Fallon 10 mins.

Joy-rides with Messrs. Cantrill, Leeming, Costa or Lacayo:—Mrs. Birley, Miss Tweeny, Messrs. Adriano, Quinn, Hartley, Thorpe, Abdulla, Macbroom, Smith, Walters, Dickinson, Jones, Lacayo, and Bute.

Tests occupied 50 mins.

Everyone is delighted that Messrs. T. N. Slack and E. S. Leete have reached their objective, Karachi, complete with two Moths and a Banjuete (slightly used), which will no doubt suffer considerably during the next week or two. Our heartiest congratulations are due to them on this splendid effort, which, as everyone knows, was attempted without any elaborate organisation or previous preparation. As the Local Press remarks, this flight "proves that these motor-cycles of the air can carry passengers, mails, or goods to any part of the world."

The Midland Aero Club.

Report for week ending Dec. 25, 1926.

The total flying time was 3 hrs. 45 mins.

The following members made solo flights:—H. J. Willis, E. J. Brighton, R. L. Jackson, W. Swann, J. Brinton, and A. M. Glover. Mr. E. J. Brighton made flights with passengers.

Unfortunately Capt. McDonough injured his arm while starting up his car, so that no dual instruction was possible.

Report for week ending Jan. 1, 1927.

The total flying time was 5 hrs. 15 mins.

The following members made solo flights:—A. M. Glover, J. Brinton, G. V. Perry, W. Swann, R. L. Jackson.

Mr. C. Fellowes was given dual instruction.

The Austin Whippet was flown by A. M. Glover and G. V. Perry.

Report for week ending Jan. 8.

The total flying time was 3 hrs. 20 mins.

The following members made solo flights:—E. J. Brighton, H. J. Willis. Mr. Brighton made two flights with passengers.

The following were given dual instruction:—H. J. Willis, G. Aldridge, C. Fellowes.

Test flights occupied 20 mins. Very poor visibility restricted flying.

The Hampshire Aeroplane Club.

Report for week ending Jan. 7.

The following members had instruction:—Stokes 1 hr., Cooper 40 mins., Nicholson 20 mins., Shepherd 20 mins., Southcliffe 20 mins., Perfect 10 mins., and Lieut. Graham, R.N., 20 mins.

The following members had joy-rides:—Mrs. Fry 1 hr., Miss Fry 20 mins., and Mr. Cadell 10 mins.

The soloists were Perfect 1 hr. 30 mins., Fry 1 hr., Cooper 15 mins., Keeping 15 mins., Rumble 10 mins., Flg. Off. Mellor 10 mins., Nicholson 5 mins., Shepherd 5 mins.

Total flying time 8 hrs. 10 mins. Instruction flying 3 hrs. 10 mins. Joy-riding 1 hr. 30 mins. Solo flying 3 hrs. 30 mins.

Two pupils were successfully launched, viz., Cooper and Shepherd. It is worth recording that Cooper, who is on the staff of A. V. Roe and Co., at Hamble, has learned to fly entirely during lunch hours, and has never flown in Club machine at any other time.

This shows what "a few minutes a day" can do. On Tuesday, Messrs. Fry and Perfect passed the qualifying tests for their "A" licences.

Of course, all this has been timed to put up a good show in the first week of the New Year. In view of the disappointing response from our appeal to the Lancashire Club, we are endeavouring to think of an alternative visibility test.

The Suffolk Aeroplane Club.

The membership of the Suffolk Aeroplane Club has steadily increased, but unfortunately it does not possess an aeroplane of any sort at present.

The Club has raised £216 so far towards the purchase of a machine and it is indebted to Sir Charles Wakefield and Lord Huntingfield for their generous support.

The Club is naturally anxious to purchase a new light aeroplane, but failing further support they will be compelled to obtain a second-hand machine to start with.

To all those people who are anxious to see the development of the Light Aeroplane Club movement and who would like to help the Suffolk Club to obtain a machine the Club makes an appeal. Donations should be sent to Courtney N. Prentice, Hon. Sec., Hazeldell, Stowmarket, Suffolk.

The Johannesburg Light Aeroplane Club.

In the second week of December, 1926, the first South African Light Aeroplane Club was officially inaugurated in Johannesburg.

At a meeting held in the Selbourne Town Hall, Johannesburg, the following resolution was passed:—

"That this meeting of citizens convened by the Mayor of Johannesburg is definitely of the opinion that for national reasons the time has arrived for the active promotion and encouragement of aviation in this country, and to that end, and in order to provide members of both sexes of this community with the necessary facilities at a reasonable cost, agrees to establish forthwith a flying club to be known as the Johannesburg Light Aeroplane Club."

The Mayor of Johannesburg (Mr. A. L. Palmer), who presided, was the first to sign an enrolment form.

Mr. C. F. Stallard, K.C., who proposed the motion founding the Club, said he considered civil aviation from viewpoints of sport and commerce and as a national necessity. As far as the military aspect was concerned, he added, South Africa could be safeguarded from the air, but not from the sea.

Subsequently a foundation club membership of 120 members was formed, all of whom signed enrolment forms before leaving the hall.

The opinion was freely expressed at the meeting that it was only right that the Government and the Johannesburg Municipality should assist the Club by suitable subsidies. The Municipality, it was said, could assist in purchasing material, while the Government could maintain aerodromes, the problem of air transport being one of national importance.

The committee members of the newly-formed Club are:—The Mayor, Mr. Christie, Mr. Seals Wood, Dr. S. Evans, Mrs. Pemberton, Messrs. G. Makepeace, E. Millin, P. Lindup, H. D. Evans, W. French, S. M. Wood, C. R. Thompson, and R. Douglas (Hon. Secretary).

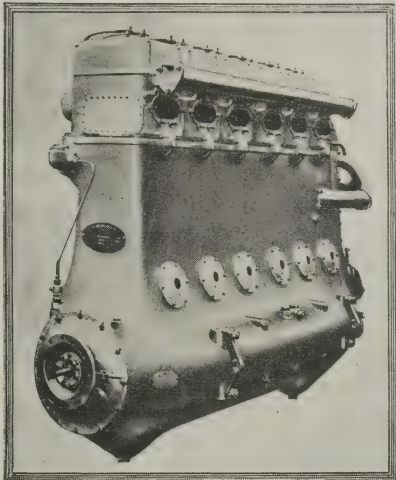
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 8; Tuesday, 10; Wednesday, 8; Thursday, 5; Friday, 6; Saturday, 5; Sunday, 1.

IMPERIAL AIRWAYS LTD.:

London—Paris; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam; Cairo—Karachi: Machines 19, passengers 102, freight 7 tons.

AIR UNION:

Paris—London: Machines 7, passengers 17, freight 2 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 9, passengers 9, freight 14 tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 6, passengers 3.

PRIVATE:

Machines 0, passengers 0.

Total number of trips by British Machines, 19, carrying 102 passengers. Foreign Machines, 22, carrying 29 passengers.

Comparative Figures:

Week ending Jan. 9:

Machines, 41; Passengers, 131; Crews, 67; Total personnel, 198.

Corresponding week, 1926:

Machines, 53; Passengers, 120; Crews, 65; Total personnel, 185.

Corresponding week, 1925:

Machines, 63; Passengers, 70; Crews, 79; Total personnel, 149.

Corresponding week, 1924:

Machines, 38; Passengers, 51; Crews, 58; Total personnel, 109.

Corresponding week, 1923:

Machines, 34; Passengers, 63; Crews, 65; Total personnel, 128.

Corresponding week, 1922:

Machines, 31; Passengers, 51; Crews, 50; Total personnel, 101.

Corresponding week, 1921:

Machines, 27; Passengers, 30; Crews, 32; Total personnel, 62.

Croydon Notes.

Last year must be put down as an extremely satisfactory one for the Air Lines, taking it by and large.

Five thousand four hundred and forty-six machines came into and out of Croydon. These carried 26,531 passengers, of which 16,652 were carried by Imperial Airways Ltd. Including crews 33,460 people crossed the Channel by air.

Neither Imperial Airways nor K.L.M. had any accident which caused injury to a passenger.

Imperial Airways has a number of regular passengers who use the air lines constantly, the most air-travelled of whom is probably Mr. Berk, of sulphuric acid fame, who on Saturday was making his 217th trip to Paris by air and incidentally his fourth last week.

The long expected Cairo—Karachi service is now in actual operation and flying-boats have been ordered to link the service with London. The Armstrong-Whitworth Argosy and the de Havilland Hercules, which are real air liners, have appeared during the year and have proved themselves to be highly successful and a distinct advance over previous types.

The also-long-promised new buildings are in course of construction and it seems possible that 1927 may see the actual completion of Croydon aerodrome terminal buildings.

Yes! Once again taking it by and large once again one may write 1926 off as having been extremely successful for Civil Aviation.

The Bristol Jupiters on the Handley Page Hampstead are doing extremely well. They have now exceeded 60 hrs. flying without any attention of any kind having been required by any of the engines.

To revert once more to those splendid patriotic, air-minded and hard working people (which include oneself) who got up at that unearthly hour and braved the rigours of mid-winter to see the S.O.S. off to India, here is an interesting piece of history. One recounted at the time how the valuable lives of these heroes and heroines were saved by the brilliant staff work of Imperial Airways who revived our frozen bodies by an issue of hot rum and coffee. The great mind which was responsible for this brilliant piece of staff work belonged to no less a person than Mr. Brenard. One wishes him long life and may his rum-mindedness continue.

A Loire and Olivier amphibian (Jupiter) has arrived at Croydon aerodrome. It is understood that M. Bajac is to make a number of Seine to Thames flights on the machine. He will alight on the Thames at Hammersmith at the same spot which he used some months ago.

An "Aero Carnival" organised by Mr. C. J. Chamberlain, of the Henderson Flying School, was held at the Winter Gardens at Croydon Baths on Saturday. It was an exceedingly successful function. The Connaught Cabaret Band played throughout the evening. Eight prizes were given for "spot-landing" dances. The prizes were flights given by the Surrey Flying Services. Five ladies and three gentlemen were the winners, none of whom had ever flown before. They had their flights on Sunday, piloted by Mr. Flynn, and thoroughly enjoyed themselves. Four hundred people were present at the dance, which was presided over with great success by Mr. Knight, of A.D.C. Aircraft Ltd.—G. D.

The Air Mail to Basra.

The Postmaster-General announces that the fortnightly Air Mail Service between Egypt (Cairo) and Iraq (Baghdad) is to be extended to Basra. A further extension to Karachi will be made later.

Thus, in the week of despatch, the Air Mail will offer, in comparison with transmission by the Desert Motor Route, or by the sea route via Bombay, a saving in time of transit of about 2 and 17 days respectively to Baghdad, about 3 and 13 days respectively to Basra, approximately 7 days to Bushire and other Persian Gulf ports, and about 2 days to Karachi and North-West India (Sind, Baluchistan, North-West Frontier Province, Punjab, Kashmir).

The rates of air fee payable (in addition to ordinary postage) will remain for the present as already indicated in the current Air Mail Leaflet (July, 1926, edition) for Iraq, West Persia and India respectively, viz.:—On letters, postcards, printed papers, etc., for Iraq, 3d. per oz., for Persia South and West, Arabia North-East, 3d. per oz., India, 6d. per oz.

The Procedure for Obtaining Bearings.

The following procedure, when using R/T, for obtaining single bearings, will henceforth be available for all aircraft flying in the vicinity of the London Continental Route.

The procedure is issued by the Air Ministry in *Notice to Airmen* 76 of 1926:—

Two types of bearings are given according to the form of the request—A, The true bearing of the aircraft from the D.F. station. B, The magnetic bearing of the D.F. station from the aircraft.

Examples.—A, Aircraft F-FHMU wishes to obtain its true bearing from Lympne.

1st Action. Aircraft F-FHMU calls Lympne and asks for its bearing:—"Hullo Lympne, Air Union F-FHMU calling, aircraft true bearing required, aircraft true bearing required, over."

2nd Action. Unless Lympne has already obtained a satisfactory bearing that station replies:—"Hullo Air Union F-FHMU, Lympne answering. Righto, Righto, speak for half minute, speak for half minute, over."

3rd Action. The aircraft then speaks for half a minute, remembering that Lympne is paying no attention to the actual words and might not, therefore, hear if anything of importance was passed.

4th Action. Lympne replies:—"Hullo Air Union MU, Lympne answering, aircraft true 110 at 1509, aircraft true 110 at 1509, over."

5th Action. The aircraft replies:—"Hullo Lympne, Air Union MU answering, understand aircraft true 110 at 1509, understand aircraft true 110 at 1509, over."

6th Action. Lympne replies:—"Hullo Air Union F-FHMU, Lympne answering, that is correct, that is correct, switching off."

B, Aircraft F-FHMU desires to obtain Croydon's magnetic bearing from the aircraft. (Note.—After applying deviation and allowing for drift this bearing gives the course to fly to reach Croydon. The word "course" should not be used in asking for this type of bearing.)

1st Action. Aircraft F-FHMU calls Croydon, and asks for Croydon's magnetic bearing:—"Hullo Croydon, Air Union F-FHMU calling, Croydon magnetic bearing required, Croydon magnetic bearing required, over."

2nd Action. As in "A" with the substitution of "Croydon" for "Lympne."

3rd Action. As in "A" with the substitution of "Croydon" for "Lympne."

4th Action. Croydon replies:—"Hullo Air Union MU, Croydon answering, Croydon magnetic 295 at 1413, Croydon magnetic 295 at 1413, over."

5th Action. The aircraft replies:—"Hullo Croydon, Air Union MU answering, understand Croydon magnetic 295 at 1413, understand Croydon magnetic 295 at 1413, over."

6th Action. As in "A" with the substitution of "Croydon" for "Lympne."

Parachute Descents from Civil Aircraft.

The Air Ministry *Notice to Airmen* No. 2 of 1926 states:—With reference to *Notice to Airmen* No. 56 of 1925 on the above subject, permission to carry out a parachute descent will not be granted unless the following conditions are satisfied:—

1. The parachute and harness must be of an approved type.
2. A ground engineer must be employed who is competent to inspect pack and fit the parachute to the aircraft and to the parachutist concerned and whose licence has been endorsed to this effect.

Applications for verifications of 1. above and for the endorsement of the ground engineer's licence specified in 2. should be addressed to the Secretary (C.A.2.), Air Ministry, Gwydyr House, Whitehall, London, S.W.1.

Air Navigation Directions.

Under the terms of Article 30 of the Air Navigation (Consolidation) Order, 1923, the Air Ministry have just issued new Air Navigation Directions* which are to come into force on Nov. 15, and will supersede all Air Navigation Directions now in force.

These directions relate to the registration and licensing of

* "Air Navigation Directions, 1926" (A.N.D.6), H.M. Stationery Office, 6d. net.

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aircraft, pilots, navigators and ground engineers. In general they follow in their form the regulations now in force.

No hint is to be found in them of Certificates of Airworthiness for private machines which were practically promised by the Air Ministry at the end of last year. The regulations relating to Certificates of Airworthiness are seemingly to become even more stringent, more complicated, and more irritating than before.

A novel feature is the provision for granting Certificates of Airworthiness limited to particular classes of work for which the machine is fitted. That is to say a machine may be certified as airworthy for, say, Aerial Survey. In this event it is not airworthy if it is used to transport goods, unless the certificate covers that use as well. A certificate may be granted to an individual machine for more than one type of service, but apparently all the purposes for which it can become airworthy must be declared in applying for the certificate.—W. H. S.

THE ROYAL AERO CLUB MONTHLY HOUSE DINNER.

The next Monthly House Dinner of the Royal Aero Club will be held at 3, Clifford Street, London, W.1, on Wednesday, Jan. 19, at 7.15 p.m. The subject, "Aviation," will be opened by Mr. C. R. Fairey. Members wishing to attend are requested to notify the Club at the earliest possible moment.

MORTGAGES AND CHARGES.

NEWCASTLE-UPON-TYNE AERO CLUB LTD.—Debuture dated Dec. 6, 1926, to secure not more than £2,000, charged on the property of the Company, present and future, as may have been or may be purchased in whole or in part with money supplied by the President of the Air Council (the debuture holder).

COMPANY NEWS.

VICKERS LTD.—Satisfaction in full on April 1, 1924, of trust deed dated November 16, 1897, securing £1,250,000. (Notice filed December 24, 1926.)

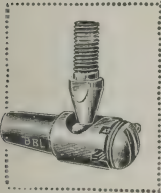
PERSONAL NOTICES.

MARRIAGES.

BOURNE—COTTLE.—On Jan. 5, at Cerrig-y-Druidion, Capt. John Arthur Watson Bourne, late R.F.C. and R.A.F., son of Mr. and Mrs. W. J. Watson Bourne, of Senhouse, Tamworth, to Marjorie, elder daughter of Mr. and Mrs. William Cottle, of Wallasey.

WEEDON—DICKIE.—On Jan. 5, at Khartum, by the Bishop of Egypt and the Sudan, Capt. Lindsey Spence Weedon, late R.A.F., Barakat, son of the late Henry Weedon, Esq., and the late Mrs. Drury, of Oxford, to Eileen Mary, daughter of late Thomas Coulter Dickie, Esq., and Mrs. Dickie, of Clonavon, Omagh.

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Mr. C. G. Grey wrote last week "Aviation is becoming a commercial proposition from every point of view," also "manufacturers are beginning to realise that aircraft both civil and warlike can be sold." The Advertiser is a young gentleman (25) very keen on aviation and has a great belief in its future particularly for light aeroplanes. He wishes to find a position where his enthusiasm coupled with business capabilities, tact and commonsense would be of use. Box No. 5372, THE AEROPLANE, 14, Bream's Buildings, E.C.4.

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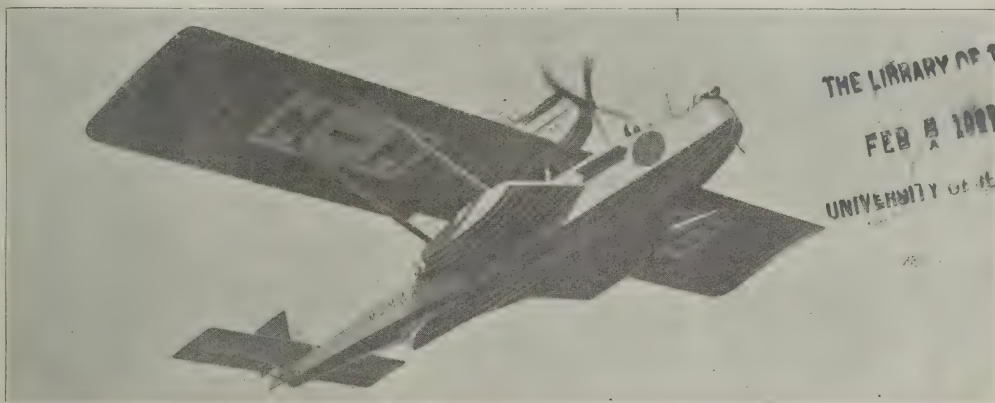
Edited by
C. G. GREGG

Vol. XXXII. No. 3.

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[Registered at the G.P.O.
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AN INTERNATIONAL AFFAIR.



A SPANISH EMPIRE FLIGHT:—A Dornier Wal flying boat (two Rolls-Royce Eagle engines) of the Spanish Army Air Service in flight. Between Dec. 10—25, 1926, three machines of this type completed a flight from Melilla to Fernando Po, Spanish Guinea, a distance of 4,400 miles, in nine stages.



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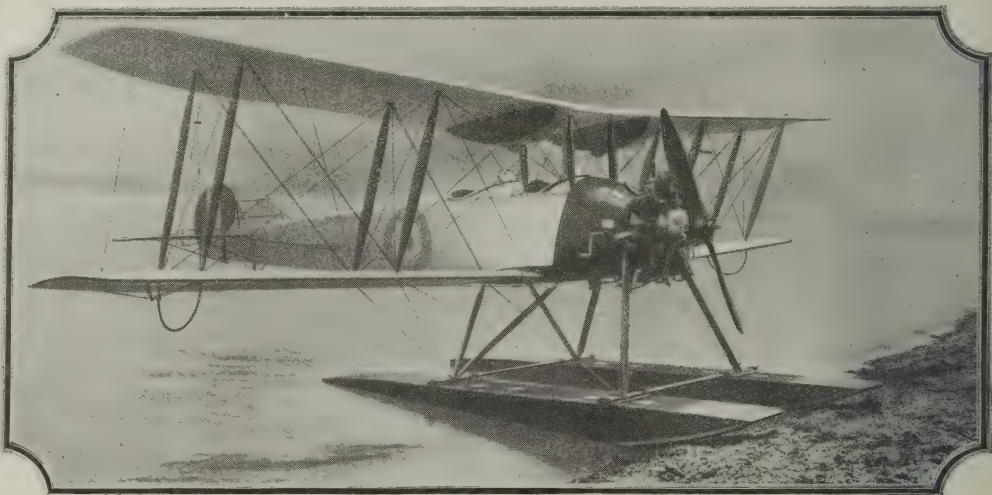


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ON PROBLEMS FOR 1927.

STOPPING STALL-ACCIDENTS.

One of the worst habits in the world is the making of good resolutions for the New Year. Good resolutions, like promises and piecrust, are made to be broken. Therefore one does not suggest that anybody concerned with aviation should make any good resolutions for 1927. A far better scheme is to have a sort of stocktaking and find out what problems have to be met and beaten in the coming year, resolving merely to do one's best to get the upper hand of them.

Therefore, by way of contributing to the best of one's ability towards the further and more rapid progress of British Aviation in 1927, one proposes to set forth as briefly as may be some of the problems which those of us who are concerned with aviation ought to set about solving in the next eleven months.

THE FIRST PROBLEM OF THE R.A.F.

First and foremost, because of their vital importance to the British Empire, we must put the problems of the Royal Air Force. And the first of the problems of the Royal Air Force is undoubtedly how to prevent flying accidents. If the proportion of accidents to the number of hours flown can be reduced then we are obviously producing a more efficient Air Force—always provided, of course, that the amount of flying increases and that the flying hours are usefully employed in fighting, bombing, and reconnaissance practice, and not merely wasted in joy-riding round the country to put in flying hours.

The problem of reducing the number of accidents actually divides itself under two heads, one preventing pilots from killing themselves by their own foolishness, and the other preventing them from being killed through the ignorance or carelessness of others.

These two headings are rather apt to become mixed because, using obsolete machines, as the Air Force does to such an enormous extent, we arrive at a point where a good and careful pilot will not have an accident on an obsolete machine which he knows well, though an inexperienced and careless pilot will have an accident under similar circumstances; and yet with a properly designed modern machine, or even with an obsolete machine slightly modified, the same inexperienced pilot might not have an accident.

In a recent article one pointed out that the majority of the fatal accidents in the R.A.F. have happened on D.H. 9s and Bristol Fighters. Almost all those accidents have occurred from one or other of the following causes,—(a) stalling in getting off, (b) stalling in landing, or (c) stalling on a turn, either in an ordinary turn or in trying to turn back into an aerodrome. And in many cases these stalls have happened because in these peaceful times the machines are loaded with gadgets and extra equipment which they were never asked to carry during the War 1914-18.

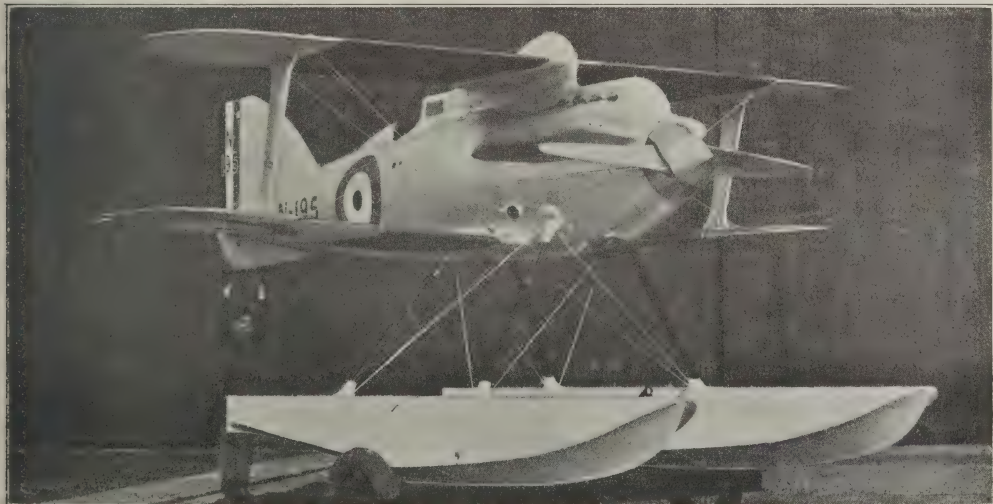
Now practically all those stalls could be prevented if the pilots were given warning that the machines had almost reached stalling point. And that warning can be given quite easily by the simple process of fitting the Savage-Bramson Anti-Stall Gear.

One believes that some expert test pilots object to this gear because they say that it kicks the stick too hard in giving its warning. That can easily be altered by merely adjusting the mechanism to give a smaller kick. But personally one believes that some of the hamfisted pilots who do manage to get through their flying tests would be all the safer if the mechanism were adjusted to kick the control stick clean out of their hands and put the nose of the machine down in spite of them. There at any rate is a simple way of solving one problem which one hopes will soon cease to exist with the re-equipment of the Air Force with modern machines.

The stalling of overloaded Bristol Fighters can be prevented in most cases by fitting bigger rudders. The Bristol Aeroplane Company themselves solved the problem ever so long ago. But apparently the experts of the Royal Aircraft Establishment are still making up their minds how big the rudder ought to be.

ABOLISHING THE ROTARY.

A contributory cause to accidents can be overcome by abolishing the use of the Monosoupape Gnome engine at the Flying Training Schools. Pupils spend a lot of valuable time learning the tricks of keeping that particular engine running, although they will never have to use another Mono-



A DOG-SHIP. —The Gloster III seaplane (Napier Lion engine) which is now being used by the R.A.F. High Speed Flight, Felixstowe, for experimental purposes. Wing radiators, a cantilever tail and redesigned wind-screen are noticeably new features on the machine since it took part in the 1925 Schneider Trophy Competition.

Gnome, or any other rotary engine, in their lives after they leave the Training School, unless they have the misfortune to be brought back to an F.T.S. as instructors. Their time would be very much better employed learning the tricks of standard-type radial and water-cooled engines similar to those which they use in Service machines, though of lower power.

Also, in learning to fly with Mono-Gnome engines pupils waste time in learning the tricks of flying an aeroplane with a rotary engine. This is actually worse than waste of time because when they get onto machines with stationary engines they are apt to be dangerous and actually have to unlearn a good deal of what they spent time in learning. One is quite sure that the difference between flying with a rotary engine on a light machine like the standard Avro and flying a big lump of a machine like the D.H.9a, which has an entirely different set of tricks, has a great deal to do with crashes, fatal or otherwise, at the Flying Training Schools.

SELECTING PILOTS.

From various quarters one has heard that more care ought to be taken in selecting pilots, after they have learned to fly, for the different types of machines which they have to fly afterwards. One knows of many instances in which pilots have been specifically marked for single-seaters and have then been sent to heavy bombing squadrons, and contrariwise.

It is all very well to say that any pilot ought to be able to fly any type of machine. There are certain pilots who are naturally gifted in that way. But there are others who though they are extremely reliable on one type of machine are not suited to other types.

The steady-going, slow-thinking pilot, who might make a valuable officer, and would be quite safe on a heavy unresponsive aeroplane may very well become a danger to himself, and everybody else if put onto a quick-acting single-seater. On the other hand, the man who happens to have the single-seater temperament, if he is put onto a heavy slow machine, is apt to get bored with it and to start playing tricks which end by his crashing the machine even if he does not kill himself or anybody else. This is distinctly a problem to which the Personnel Department might well give attention.

DISCIPLINE.

While on the subject of personnel one feels justified in suggesting that some of the younger pilots could very well do with more severe flying discipline. When one sees the behaviour of some of them in the air one is not surprised that there are so many accidents, but rather that there are so few.

While one was at Folkestone during the Lympe meeting one heard of many complaints by the local people about pilots of single-seaters dashing along the beach anywhere between Folkestone and Dungeness only a few feet above the heads of bathers. It may be very funny for the occupant of an aeroplane to dive at a group of people in the water and make them duck, but it is not nearly as funny for the bathers themselves, even though they may know quite a lot about aeroplanes.

Some of them may in fact know more about aeroplanes than do the aforesaid pilots, and so may have less faith than has the pilot himself in the certainty of the machine

missing them. One has only to recall a recent lamentable accident in India, when a pilot practising dipping in passing a saluting point, dipped too far and hit the ground, and the fatal accident to Lieut. Conant, U.S.N., of the American Schneider Trophy team, on an ordinary seaplane, to realise that aeroplanes do not always obey their controls exactly.

Also one hears from all over the country complaints about pilots circling round houses so low, or in such positions, that if their engines cut out they could not make a safe landing. Youngsters generally grow out of that particular stage of foolishness fairly soon, but they ought never to be allowed to start playing such tricks.

Stopping them is merely a matter of discipline in the individual squadron. Naturally the Squadron Leader may not hear of such behaviour unless there happens to be a crash or unless it is so outrageous that people complain. The best way of stopping it is for the individual Commanding Officer to instil into his young officers the idea that a gentleman is never unpleasant unintentionally.

If some of these young pilots had to spend so many hours a day definitely in fighting, bombing, photography, or Army Co-operation practice, they would be less likely to try being funny at the expense of others.

ESPRIT DE CORPS.

Another of the problems for 1927, and one which affects the Air Staff quite considerably, is the increase of *esprit de corps* in the Air Force. Some years ago the Chief of the Air Staff, in one of his infrequent public utterances, said that he hoped that some day the R.A.F. Squadron might become the home of the individual officer or man just as the Regiment is in the Army. The R.A.F. is still a long way from such a happy state, which would go further to raise the *esprit de corps* of the Force than anything else.

One is quite aware of the difficulty of keeping officers and men continually in the same squadron. The chief difficulty apparently is that of service overseas. People have to do a certain amount of time overseas and when they have done their time they are entitled to come home again.

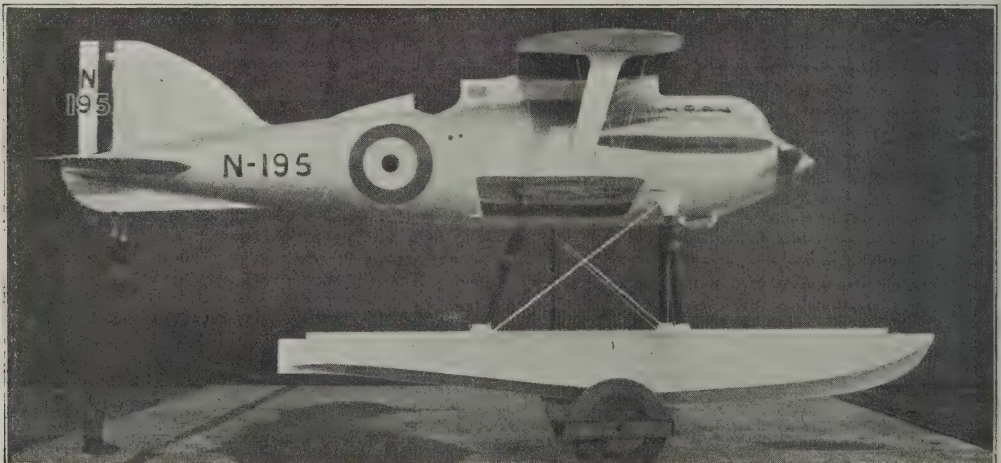
As we began by sending people overseas as individuals and not as R.A.F. units, apparently we have to continue that evil habit. Nevertheless, one believes that it is humanly possible to start a new system by which the whole personnel of a squadron goes overseas together and comes home together.

There is no need to transport the material of the squadron. All that is necessary is for the personnel of one squadron of a certain type to take over the matériel of a similar squadron overseas while the people overseas on their return take over the material that is left at home. In fact squadrons might very well be doubled in size, or divided as in fact some squadrons already are, into A and B squadrons, so that the personnel could exchange from A to B or B to A for home and overseas service a few at a time, just as the first and second battalions of a second regiment in the Army exchange personnel, without leaving their squadron.

One cannot see how the squadrons of the R.A.F. can establish any individual tradition so long as their officers and personnel never serve more than a year or two in the same squadron or even in the same class of squadron.

NEW TYPES.

From personnel we may now pass on to the subject of



THE GLOSTER III.—A side view of the modified Gloster III which is now being used for experimental work by the R.A.F. High Speed Flight.

For 1927—profit by the results of 1926 •

The most successful aero engine in 1926 was the Napier.

For all the long-distance British Service flights the Napier was selected. It justified its choice as every flight was carried out to schedule and without any mechanical trouble or change of engine.

In the early part of the year Commandante Franco employed Napier engines for his flight from Spain to Buenos Aires—the first and only crossing of the South Atlantic ocean without change of machine or engines.

The first prize in a competition held to discover the best German commercial seaplane was won by the only Napier-engined machine entered.

Two World's Seaplane records were awarded a Napier-engined machine for carrying heavy loads to high altitudes.

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matériel. Obviously the chief problems before the Supply Branch of the Air Ministry must be what types of machines to order for the future safety of flying personnel both against accidents and against enemy action. One has had a good deal to say on this subject in the past, but at this early period of the year one may as well re-state some of one's beliefs.

Personally one is of the opinion that practically every type of aeroplane now used by the R.A.F. is entirely wrong as a type. Admittedly our aircraft are beautifully made and in detail design and workmanship are superior to those of any other nation. (This by way of justice to the British Aircraft Industry.) But the type of machines, as produced by the Trade, to Air Ministry Specification, are altogether wrong.

Our single-seaters are not fast enough for pursuit ships and they are altogether unsuited to act as bombers, although they are absurdly caparisoned with bomb racks let alone all the other fal-lals and furbelows which bring joy to the hearts of technical experts and blood to the eyes of intelligent pilots. Our excuse for all these slow single-seaters is that though they cannot fly fast they can fly fairly high, and, when fitted with supercharged engines, can get above any reasonable enemy machine! But the people who are responsible for them apparently do not know enough to know that there is no use getting above your enemy if he is so fast that you cannot catch him when you are above him.

Admittedly we must have a certain number of high-altitude fighters. The late Major James McCudden, V.C., was probably the first fighting pilot to discover that fact, for those who have read his book, "Five Years in the R.F.C.," which is still the best book ever written on air fighting, will remember that the latter part of his service in France was spent sitting up (without oxygen) at something over 20,000 feet lying in wait for German photographic reconnaissance machines. And, incidentally, the Germans had by then discovered that the right way to do a long-distance reconnaissance is to do it purely photographically with machines that either climb so high or go so fast that the enemy cannot catch them.

Therefore the solution of one of the problems of 1927 is to produce the fastest possible single-seaters, for use as pursuit-ships and as high-speed photographic machines, and the other is to produce real high-altitude fighters, though only a very few of them are likely to be needed, and then only for work overseas. The high-speed pursuit-ships are the right thing for home defence against bombers.

As for the bombers themselves, our present slow bombers are quite the most useless aircraft ever imagined. They go a long way in a longer while, and during that while they are perfect targets for anti-aircraft guns and any old defensive aircraft that pleases to go up against them.

The problem for 1927 in this case is the production of a machine somewhere in the same family as the Hawker Horsley but carrying one enormous bomb inside the fuselage instead of hanging it outside to kill the speed of the machine. The Americans carry their torpedoes inside the fuselages, and that is the proper place to carry bombs.

Those are just a few of the problems which concern the types of machines for the R.A.F. for 1927. Other problems which arise in the course of the year will be duly presented to those who are concerned with them.

SEPARATION AND COMPETITION.

Apart from that, as one suggested some weeks ago, the

Supply Department and the Research Department ought to be separated entirely. Both being in one department the Supply people allow the Research people to waste far too much time playing about with experiments when they themselves ought to be fixing on new types and ordering them in quantities big enough to allow them to get rid of obsolete types. The continued use of so many obsolete and obsolescent types in the R.A.F. to-day is very largely the result of these two departments being in alliance when they ought to be in opposition and competition. And the Air Staff ought to hustle the Supply people more than they do to provide them new types.

The Research Department needs still more hustling, or at any rate the Technical Department people do. There is no use in trying to hustle the scientists who spend their lives studying the life and pastimes of a split pin, or crystal-gazing at bits of aluminium and fancy steels. But pressure from the Air Staff on the Supply Department might do a great deal to get a move on the people who are supposed to be studying wing flutter and stalled control and useful practical things of that kind.

If the two Departments were separated the result would be rivalry and competition, together with envy, hatred, malice and all uncharitableness. Thus each Department would act as a spur to the other instead of, as they are liable to do at present, each wasting still more time trying to cover up the shortcomings of its colleague.

FRESH BLOOD FOR THE TRADE.

Some pressure might be brought to bear on the Aircraft Industry in spots. We have undoubtedly in the design departments of the Trade a number of young men with bright ideas and advanced theories. Some of our senior designers have also moved with the times and are full of the most modern theory and practice. But there are others among the senior people who for years have not produced anything worth having, and yet are convinced that they know everything worth knowing. Some firms would actually make a profit by retiring their senior designers on full pay and giving the younger men a chance.

Perhaps it would pay some firms even to use the brains of certain consulting aeronautical engineers who are available in this country and in Europe, or to form alliances with people on the Continent of Europe or in America who have produced aircraft and engines of outstanding merit.

There is no use in our pretending that we in this country possess all the best brains in the World all the time. The whole history of England shows that wherever we have risen to first place in any particular trade we have done it by importing foreign ideas and foreign designers.

The linen trade and the cotton trade and the wool trade and the cycle trade and the motor trade and the aircraft trade all owed their rise to the importation of foreign specialists.

The very first Germans who were allowed officially to reside in this country after the end of the War 1914 were about a dozen brewers who were imported to teach us how to make lager beer. And we have had to import almost all our best musical composers.

Somehow or another the Air Force has got to have not merely the best built aeroplanes but the aeroplanes with the best performance, and the problem before the Air Ministry is to get those best aeroplanes without considering anybody's feelings.—C. G. G.



A NEW TRAINING SEAPLANE.—The Blackburn Sprat (270 h.p. Rolls-Royce Falcon engine), designed for seaplane and deck-landing training. The Blackburn all-metal floats can be replaced by a land undercarriage.



"Flight" Photo.

An Impression of the FAIREY "FOX" day bomber.

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THE AIR LEAGUE OF THE BRITISH EMPIRE.

The following statement appeared in *The Times* for Jan. 14:—

"The Air League of the British Empire has received an offer, on behalf of those interested in production, of £5,000 a year for two years under certain conditions, this sum to be used in organisation and propaganda. One of the conditions, it is stated, is that their nominee should be appointed as Secretary-General at a salary of £2,000 a year, including expenses, and should have a free hand.

The offer was originally made to the Chairman of a Committee of Inquiry set up last year to consider how best to strengthen the activities of the League in securing a proper recognition of the value of air power within the British Empire, and yesterday the Executive Committee of the Air League, at a meeting at the offices in Hanover Square, resolved to recommend to the postponed annual general meeting that the offer of £5,000 per annum for two years, in accordance with the undertaking given by Mr. Handley Page in his letter to Lord Burnham of Dec. 17, 1926, and subject to the League's legal adviser being satisfied as to the conditions of guarantee, be accepted, and also to recommend to the postponed annual general meeting the appointment of the said nominee at the said salary, if the above-mentioned sums of money are provided.

These resolutions will now doubtless be submitted to an adjourned annual general meeting. The total income of the Air League in 1925 was only £3,210, and in 1926 about £3,500. The committee of inquiry already referred to was set up last July because it was felt that the Air League was not making the headway desired. It consisted of Lord Burnham (Chairman); Mr. P. J. Hannon, M.P.; Mr. Philip S. Foster (chairman of the executive committee of the Air League), Mr. Shirreff Hilton (deputy-chairman), and Colonel Davson, representing the Air League; Air Vice-Marshal Sir Sefton Branner, representing the Royal Aeronautical Society (though the present chairman, Colonel the Master of Sempill, has also been acting as the society's representative during Sir Sefton Branner's absence); and originally Colonel M. O'Gorman, and on his retirement, Colonel Sir Francis McClean, representing the Royal Aero Club. It was a communication from this committee which put forward the proposal outlined above as the result of an offer made by a person acting on behalf of those who were to provide the £10,000.

It is understood that the financial offer made through the committee of inquiry contained a definite assurance that there would be no interference with policy on the part of those finding the £10,000, that the League's policy would be perfectly free and unfettered, and that no interference whatever, by the industries concerned, would be exercised in any manner."

It is understood that a Joint Committee of Inquiry, presided over by Lord Burnham, has been holding a series of meetings since October last. It has not, however, finally adopted its report although it has arrived at certain resolutions in regard to the constitution or re-organisation of the Air League and the general co-ordination of air interests.

The Executive Committee of the Air League has had referred to it the resolutions of the Joint Committee of Inquiry which affects its constitution, and these were considered at a meeting held on Jan. 12 and were unanimously approved.

It is expected that the Committee of Inquiry will make its report within the next four weeks and until this has been done it is not considered advisable to question the above statement.

THE FEDERATION AERONAUTIQUE INTERNATIONALE.

The Fédération Aéronautique Internationale held a Committee Meeting in Paris on Dec. 16-17, 1926.

Lieut.-Col. M. O'Gorman, C.B., and Mr. H. E. Perrin attended as representatives of the Royal Aero Club.

With reference to the Schneider Trophy Competition, the Italian Aero Club requested permission to reconsider the decision passed at the Rome Conference to hold the competition biennially. It was decided that the Committee could not deal with the matter and that an Extraordinary Conference should be called for Jan. 25, in Paris, at which the question could be reopened.

Regarding high speed records it was decided that machines must have made two safe alightings prior to any record attempts.

With regard to the proposed classes for World's Records for Light Aeroplanes, it was suggested that there should be two classes, one for machines weighing under 200 kgs. empty, and one for machines weighing between 200 and not exceeding 400 kgs. empty.

The Royal Aero Club suggested that in Class 2 the maximum weight should be reduced to 350 kgs. The final classification will be decided at the Conference on Jan. 25.

The Gold Medal of the F.A.I. for the year 1926 was awarded to Sir Alan J. Cobham for his flight to Australia and back.

Other questions dealt with were:—Distance Records over the sea, Basis for valuing machines for Customs purposes, Timing of High Speed Records, Height Records and Temperature and Suspensions and Disqualifications.

At the Committee Meeting of the Royal Aero Club held on Jan. 12, a vote of thanks was passed to Lieut.-Col. O'Gorman for attending the Conference on behalf of the Club.

Lieut.-Col. M. O'Gorman was appointed the Club Delegate at the Extraordinary Conference to be held in Paris on Jan. 25.

THE BRITANNIA TROPHY.

The Committee of the Royal Aero Club will consider the award of the Britannia Trophy for the year 1926 at its meeting in February next.

The Britannia Trophy is awarded each year "to the British Aviator who, in the opinion of the Committee of the Royal Aero Club, shall have accomplished the most meritorious performance in the air during the year."

The Royal Aero Club will be glad to receive particulars of any meritorious performances for consideration by the Committee when making the award. Particulars should be addressed to the Secretary, Royal Aero Club, 3, Clifford Street, London, W.1, not later than Feb. 7, 1927.

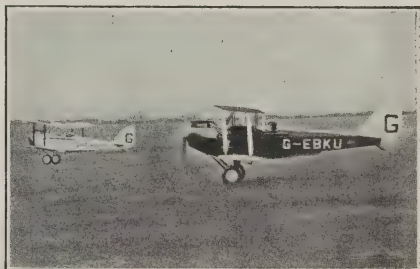


THE BLACKBURN SPRAT.—A side view of the new deck-landing and seaplane training biplane produced by the Blackburn Aeroplane and Motor Co. Ltd. The engine is a 270 h.p. Rolls-Royce Falcon.

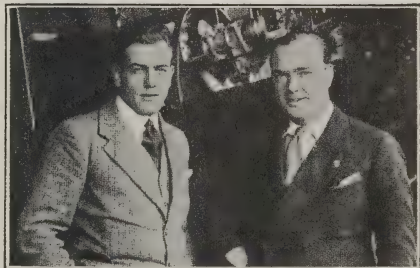


WORLD'S LONGEST LIGHT AEROPLANE FLIGHT.

THE MACHINES used on this pioneer flight of LIGHT AEROPLANES are two De Havilland "CIRRUS-MOTH" machines equipped with an extra petrol tank to enable long distances to be flown non-stop as is necessitated by the stretches of sea and desert on the route. The illustration shows the machines starting from Stag Lane Aerodrome.



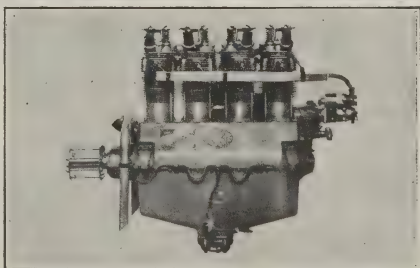
THE PILOTS are Capt. T. Neville Stack and Mr. Bernard M. T. S. Leete, and every credit is due to them for having successfully negotiated the difficulties encountered such as gales, sandstorms, stretches of desert, and sea crossings on land type machines, all of which go to prove the utility of the Light Aeroplane as a means of travel.



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THE ROYAL AERONAUTICAL SOCIETY.

The following letter has been received:—

Sir,—In your issue of Jan. 12 you report that the Westland Aircraft Society has now become the Yeovil Branch of the Royal Aeronautical Society. You seem, however, to be under some misapprehension as to the terms on which a body such as the Westland Aircraft Society can become a branch of the Royal Aeronautical Society. You will, therefore, I hope, allow me to present a few facts so that any interested may be fully aware of all that is involved.

This Society is desirous of encouraging in every way the formation of branches throughout the country, many of which can be immediately formed from existing works societies. The terms covering the formation of such branches are, generally speaking, as follows:—

(1) Each branch is self-governing.
(2) Every member of a branch is entitled to attend all the Society's lectures and discussions, and to consult any publications in the Society's offices.

(3) The branch is, according to its membership, regularly supplied with a number of copies of the Society's Journal free of charge. Further copies are supplied to members of the branch at cost price.

(4) The reports of the proceedings and fixtures of each branch are published regularly in the Journal of the Society.

(5) Assistance is given by the Society when required in the arrangement of lectures and discussions and repetition, if desired, of lectures held elsewhere.

(6) No proportion of the branch subscriptions is paid to the Royal Aeronautical Society.

(7) The Chairman must be a Fellow or Associate Fellow, and the Secretary a Fellow, Associate Fellow or Associate, of the Royal Aeronautical Society.

You will therefore see that the formation of a local branch involves no subscription of any kind to the Society.

The Society is arranging for the dissemination of information all of which will be available for members of the branches. Any Branch can borrow publications (and lantern slides) from the Library of the Royal Aeronautical Society which, without doubt, can be claimed to be one of the most complete in the world.

You will therefore see that the Society is trying in every way to help the branches, and I am sure you will realise that this form of activity is for the benefit of the aeronautical community at large.

(Signed) W. SEMPILL (Chairman).

THE INSTITUTION OF AERONAUTICAL ENGINEERS.

Members of the I.A.E.E. and others are reminded that on Tuesday, Jan. 25, Capt. F. S. Barnwell is reading a paper entitled "Some Notes on the Design of Airscrews."

The meeting will be held at the rooms of the Junior Institution of Engineers, 39, Victoria Street, at 6.30 p.m.

Members are also reminded that the first Institution House Dinner will take place on Friday, Jan. 28, and that early application for tickets (price 5s.) should be made to the Hon. Sec., I.A.E.E., 34, Broadway, S.W.1.

COL. MOORE-BRABAZON'S MOVE.

It was announced on Jan. 14 that Lt.-Col. J. T. C. Moore-Brabazon, M.C., M.P., had resigned his appointment as Parliamentary Secretary to the Ministry of Transport, in order to become Chairman of Sensible Heat Distillation Ltd.

During the past session of Parliament, Col. Moore-Brabazon has been responsible for piloting through the House of Commons the highly contentious Electricity Bill, and its successful passage into law has been very largely due to his skill and wise handling of the measure. One has been told by an expert on this subject that almost the only sensible speeches on the Bill in Parliament have been made by Col. Moore-Brabazon.

Sensible Heat Distillation Ltd. is a concern formed to undertake the distillation of raw coal, and in abandoning a highly promising political career for an industrial enterprise of so new a type, Col. Moore-Brabazon is but showing once again the pioneer spirit which has so distinguished him in the past.

THE AEROPLANE cannot do more than wish for him as brilliant a success in his new rôle as has attended his earlier pioneering efforts.

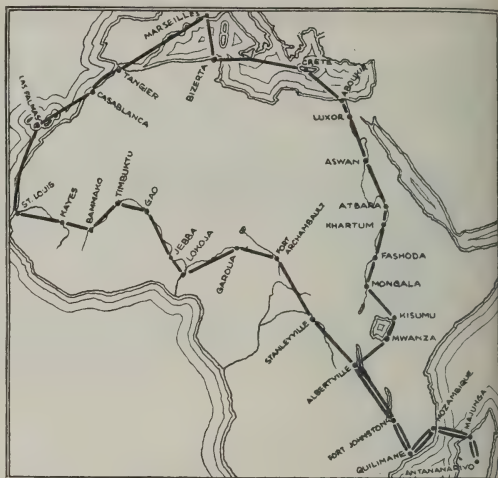
FRANCE—MADAGASCAR—FRANCE.

On Jan. 14 *Lieut. de Vaisseau* Bernard and *Maître principal* Bougault, of the French Aviation Maritime, arrived at Paris, after having flown to Madagascar and back, a distance of over 16,000 miles, on a Lioré et Olivier 190 flying-boat fitted with one 450 h.p. Gnôme-Rhône Jupiter engine.

On Oct. 12, 1926, this officer, in company with *Lieut. de Vaisseau* Guilbaud and *Second-maître* Garrat, on a C.A.M.S. flying-boat (450 h.p. Lorraine-Dietrich engine) left Marseilles and arrived at Tangier the same day.

On Oct. 13 they flew from Tangier to Casablanca, Oct. 15 Casablanca to Las Palmas, Oct. 17 Las Palmas to Port Etienne, and on Oct. 18 they arrived at Saint Louis.

Here the two machines started on a flight across Africa and on Oct. 21 they arrived at Kayes on the Sénégal River, on Oct. 25 at Bamako on the Niger, on Oct. 28 at Timbaktu, on Oct. 29 at Gao, on Oct. 30 at Gaya, and on Oct. 31 at Jebba.



On Nov. 3 they arrived at Lokoja, in Southern Nigeria. Here *Lieut. de Vaisseau* Guilbaud was compelled to give up with engine trouble.

Lieut. de Vaisseau Bernard continued alone and on Nov. 6 arrived at Fort Archambault, on Nov. 13 at Stanleyville, and on the following day at Albertville, in the Belgian Congo.

On Nov. 17 he arrived at Fort Johnston, and on Nov. 19 he reached the East Coast of Africa at Quilimane.

On Nov. 21 he arrived at Majunga, Madagascar, from Mozambique, and on the following day alighted on a lake, at 2,000 m. altitude, near Antananarivo, the capital of Madagascar, where he received an enthusiastic reception.

On Dec. 9 he began his return journey. He arrived at Mozambique on Dec. 10, Quilimane on Dec. 11, Fort Johnston on Dec. 12, and at Albertville on Dec. 14.

Here he turned northward, and on Dec. 16 he reached Mwanza, and flying via Kisumu, Mongala, Fashoda, Khartoum, Atbara, Aswan, Luxor, arrived at Aboukir on Dec. 29.

On Jan. 6 he reached Crete, on Jan. 8 Bizerta, and on Jan. 12 he arrived back at Marseilles.

On Jan. 14 he flew from the Etang de Berre, near Marseilles, to Paris, alighting on the Seine between the bridges of Suresnes and Saint Cloud, at 14.10 hours.

The pilot and his mechanic were received by M. Leygues, the Minister of Marine, M. Perrier, Minister of the Colonies, M. Olivier, Governor of Madagascar, Admiral Frochet, Inspector-General Fortant, General Niessel, and many other officials and notabilities.

Later in the day they were received by President Doumergue at the Elysée, who promoted *Lieut. de Vaisseau* Bernard to the rank of *Officier de la Légion d'Honneur*, and *Second-maître* Bougault to the rank of warrant officer in the Navy.

No trouble was experienced with any of the equipment throughout the whole flight.

This flight once again proves the value of the seaplane for long-distance flying. A reference to the map shows that something like seventy-five per cent. of the flight was actually over the continent of Africa, the great rivers and lakes providing natural alighting places without the need for preparing landing grounds such as would be necessary for land aircraft.

This flight was the first long-distance flight undertaken by the French Navy and everybody concerned deserves the very greatest credit for the accomplishment.

Reports from the pilot concerning the Jupiter engine state that from the beginning to the end he never had a moment's trouble or anxiety with it and no spare parts were used, facts of which both the Bristol Aeroplane Co. and the Gnôme-Rhône Co. should be justly proud.

HIGH FLYING DANECOCKS.

The Hawker Danecoeks (Armstrong-Siddeley Jaguars) which were built for the Danish Government by the H. G. Hawker Engineering Co. Ltd., have been flying extremely well in Denmark. On a recent occasion one of them, carrying full load and under Service conditions, established a height record for Scandinavia.

The Danecoek is one of Mr. Fred Sigris's developments of the Woodcock and is thoroughly up to the Sopwith-Sigris high standard of workmanship.

METAL CONSTRUCTION



1919



1925

THE Boulton & Paul P.10 Aeroplane, exhibited at the 1919 Paris Show, was the first complete example of modern all-metal construction to be introduced to the public. It compared on very favourable terms with contemporary wooden machines. Developments since that date have consisted not merely in the incorporation of these methods of construction in new types of aeroplanes. In

the evolution of new and better constructional features, in the application of constant aerodynamical research to body and wing forms, in the employment of new and better materials, in the improvement of methods of control, in the introduction of safe protective coatings—in these and many other ways, Boulton & Paul aircraft embody not only experience but **PROGRESS.**

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THE ROYAL AIR FORCE.

The London Gazette.

Jan. 14.

GENERAL DUTIES BRANCH.—The following are granted S.S. comms. as Plt. Offs. on probation, with effect from and with seniority of, Jan. 4:—A. R. S. Davies, R. F. Gandy, L. L. K. Honeyball, J. B. Knapp, A. McKee, J. H. L. Maund, P. C. Miller, H. F. Surén, F. J. Taylor, C. K. Turner, J. W. Wood.

The following are granted temp. comms. as Flg. Offs. on attachment for four years' duty with the R.A.F. (Jan. 4):—**LIEUTENANTS, R.N.**—H. S. Cooper, D. M. L. Nceme, A. G. Watson, R. F. Jessel, H. D. Smallwood, C. A. N. Hooper, A. C. G. Ermen, T. S. Jackson, C. Campbell. **SUB-LIEUTENANTS, R.N.**—D. J. Margetts, S. G. Long, R. A. Kilroy.

Plt. Off. C. J. Veevers is promoted to the rank of Flg. Off. (Nov. 14, 1926).

The following Plt. Lts. are transferred to the Reserve, Class A:—E. J. A. Burke (Jan. 7); T. A. Thornton (Jan. 10).

The S.S. comm. of Plt. Off. on probation H. H. R. Schleman is terminated on cessation of duty (Jan. 12).

MEDICAL BRANCH.—Flt. Lt. A. A. Townsend, M.B., is granted a perm. comm. in this rank (Jan. 12).

The following Flg. Offs. are promoted to the rank of Flt. Lt.:—J. M. Kilpatrick, M.B. (Jan. 7); F. L. White (Jan. 16). Flg. Off. V. P. Ellis (Temp. Lt., General List, Army Dental Surgeon) relinquishes his temp. comm. on completion of service (Jan. 7).

RESERVE OF AIR FORCE OFFICERS.—The following Plt. Offs. are confirmed in rank:—E. P. Lash (Jan. 4); C. E. F. Riley (Jan. 11). Flt. Lt. W. R. S. Humphreys, A.F.C., is transferred from Class C to Class B (Dec. 5, 1926).

The following Flg. Offs. relinquish their comms. on completion of service:—P. J. Bradley (Oct. 24, 1926); G. R. Terry (Dec. 12, 1926); A. W. C. Bayes (Jan. 1).

The comm. of Plt. Off. on probation C. E. F. Sayer is terminated on cessation of duty (Nov. 21, 1926).

PRINCESS MARY'S R.A.F. NURSING SERVICE.—The following Staff Nurses are promoted to the rank of Sister:—Miss N. A. Hampton (Jan. 3); Miss E. Wilson (Jan. 7).

Appointments.

Week ending Jan. 17.

GENERAL DUTIES BRANCH.—Wing Commanders R. E. Saul, D.F.C., to R.A.F. Depot, Uxbridge, for course at Staff College, Camberley, 9/1. W. C. Hicks, A.F.C., to No. 1 School of T.T. (Apprentices), Halton, to command No. 4 Apprentices Wing, 20/1. G. F. Pretyman, D.S.O., O.B.E., to R.A.F. Depot, Uxbridge, 1/1. R. J. F. Barton, O.B.E., to R.A.F. Station, Duxford, pending taking over command, 1/2.

Flight Lieutenant W. R. B. Annesley, to R.A.F. Training Base, Leuchars, 15/1.

Flying Officers R. S. Blucke, C. R. Mason, E. C. G. Badcock and J. W. Vanderbeck, to Electrical and Wireless School, Flowerdown, 10/1. M. B. Mackay, to Armament and Gunnery School, Eastchurch, on transfer to Home Estab., 18/1. G. G. Mobbs, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 26/12. E. Parrett, to No. 1 School of T.T. (Apprentices), Halton, 17/1. M. C. Dudding, to School of Photography, S. Harnborough, 20/1. M. V. Ward, to R.A.F. Training Base, Leuchars, 25/1. (Hon. Flt. Lt.) R. F. Carter, to R.A.F. Training Base, Leuchars, 21/1. J. A. T. Ryde, to R.A.F. Training Base, Leuchars, 7/1. R. F. Francis, to No. 481 Flight, Mediterranean, 4/1.

Pilot Officers E. M. Thompson and J. B. M. Wallis, to R.A.F. Training Base, Leuchars, 17/1. A. R. S. Davies, R. F. Gandy, L. L. K. Honeyball, J. B. Knapp, A. McKee, J. H. L. Maund, P. C. Miller, H. F. Surén, F. I. Taylor, C. K. Turner and J. W. Wood, to R.A.F. Depot, Uxbridge, on appointment to S.S. comms. (on probation), 4/1. The under-mentioned Pilot Officers are all posted on appointment to Permanent Commissions from R.A.F. Cadet College, Cranwell, with effect 11/12:—J. Clarke, to No. 29 Sqn., Duxford. W. C. Cooper, T. C. Dickens and C. W. Dicken, to No. 9 Sqn., Manston. J. C. A. Johnson, A. M. Watts-Reed and J. Marson, to No. 13 Sqn., Andover. V. O. Blackden and B. M. Cary, to No. 2 Sqn., Manston. J. Norwood, to No. 23 Sqn., Henlow. P. McG. Watt and P. C. I. Elderton, to No. 17 Sqn., Upavon. W. N. Blain, E. C. Lewis, P. L. A. Berthon and R. P. Teale, to No. 19 Sqn., Duxford. R. J. D. Brown, to R.A.F. Base, Gosport. G. Francis, G. I. L. Saye and A. R. Sarcl,

to R.A.F. Base, Calshot. V. B. J. Jackson and T. J. Arbuthnot, to No. 41 Sqn., Northolt. H. B. Maughan, to No. 99 Sqn., Bircham Newton. G. F. Lewis, P. L. F. Marrett and W. J. H. Lindley, to No. 3 Sqn., Upavon. G. F. Whistondale, to No. 12 Sqn., Andover.

MEDICAL BRANCH.—Flying Officers M. D. Rawkins, M.B., B.S., to No. 2 F.T.S., Digby, 12/1. J. E. Foran, M.B., and M. O'Regan, to Research Laboratory and M.O.S. of I., on appointment to S.S. Comms., 4/1. Flying Officer (Dental) F. F. Anslow, to R.A.F. Station, Tangmere, 24/1.

STORES BRANCH.—Flight Lieutenant F. S. Moore, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 19/2.

Flying Officers F. A. Ormerod, to No. 4 Stores Depot, Ruislip, 10/1. R. M. Thomas, to No. 39 Sqn., Spittlegate, 31/12. R. F. Wilson, to H.Q., Air Defence of Great Britain, Uxbridge, 10/1. A. J. Redman, D.F.C., to H.M.S. *Argus*, 19/1.

ACCOUNTANT BRANCH.—Flight Lieutenant I. I. Wincer, to M.A.E.E., Felixstowe, 21/1.

The School of Technical Training, Halton.

Marshal of the Air Sir Hugh Trenchard, G.C.B., D.S.O., inspected the Passing-out Entry of Aircraft Apprentices of No. 1 School of Technical Training (Apprentices) at Halton on Jan. 11.

The Air Officer Commanding, Air Vice-Marshal C. L. Lambe, C.B., C.M.G., D.S.O., in his report stated that 576 Apprentices were now passing-out. The disciplinary standard of the Entry had been satisfactory. It was hoped that when the system of training by Wings was in force the drill and discipline would be improved by tightening up the daily marching between Barracks and Workshops and School. The standard of manual dexterity had been fully maintained. A new brake-testing plant had been installed and had proved to be of great practical value in demonstrating timing faults and in testing the engines erected by the Apprentices. The new buildings and added equipment had increased the efficiency of the School. The general health of the Entry had been extremely good. The standard of physical training and games was good, although the former suffered from a shortage of instructors.

The results of the final examinations showed 43 A.A.s classified as L.A.C., 173 A.A.s classified as A.C.1., 281 A.A.s classified as A.C.2., 72 A.A.s failed, and 7 A.A.s not examined. Cadetships had been offered to No. 365047 F. C. Sturgiss, No. 364984 J. D. Rutherford, No. 364485 W. P. Beaman.

Twelve A.A.s had been retained for the advanced Course. The following was the list of Awards offered by the Air Ministry:—

- Prize for Grand Aggregate.—No. 365047 Sturgiss, F. C.
- Prize for Best Fitter Aero Engine.—No. 364986 Walker, N.
- Prize for Best Fitter Armourer.—No. 364989 Rogers, J. D. S.
- Prize for Best Fitter Driver Petrol.—No. 364913 Nunn, P. W.
- Prize for Best Coppersmith.—No. 365071 Turner, T.
- Prize for Best Carpenter Rigger.—No. 364522 Booth, A. C. W.
- Prize for Educational Subjects.—No. 364672 Amis, R. S.
- Prize for Best Turner.—No. 364600 Dunn, W. J.

After the Inspection the Chief of the Air Staff presented the Prizes in the Gymnasium. He said that the final conception of Halton as a training station had been completed by the transfer of the Boys' Wing from Cranwell to Halton. He congratulated the Apprentices on their bearing and said that the right type of the population was being tapped for the R.A.F. The Service was becoming more popular and was taking a greater part in running the Empire.

No. 1 (Fighter) Squadron.

No. 1 (Fighter) Squadron will be re-formed as a Unit of the Air Defences of Great Britain at Tangmere, Sussex, Feb. 1.



THE AIR SALUTE.—The 1924 Entry of Aircraft Apprentices of No. 1 School of Technical Training (Apprentices), Halton, marching past the saluting base on the occasion of the passing-out inspection by Marshal of the Air Sir Hugh Trenchard, G.C.B., D.S.O., Chief of the Air Staff, at Halton, on Jan. 11, 1927.

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COMBINED SERVICES.

It was the Squadron Leader's fault. He had left an aircraft carrier quite recently on promotion, and the responsibility of his extra half stripe weighed heavily.

To us,—three Flying Officers about to perform our first tour of duty with the Navy, he spoke long, heavily and tactlessly.

"Remember the Navy don't like you. You must respect their customs. Don't speak of living 'on' a ship, but 'in' a ship. Don't talk about 'stairs' or 'steps,' say 'ladder.' Whatever you do, don't forget to salute the Quarter Deck whenever you go on it. Be the first to get into a boat and the last to leave it. Remember that your rank is equivalent to a Sub-Lieutenant, and don't be afraid to salute. Remember Commander is the equivalent rank to Lt.-Col. in the Army and Wing Commander in the Royal Air Force, but senior to both."

And, crowning insult of all, "When in a boat, don't trail your hand in the water like a lot of Margate trippers."

When it was over, Davidson and I fell to saying what we thought of the Navy in Prospect, and our language was coarse, unfriendly and pointed.

Harvey was thoughtful. When questioned he merely said, "Get away, you children, I'm thinking. Can't you see there are possibilities in all this?"

We let him think. He usually did it for us.

Two days later we arrived on the gun wharf, Portsmouth, in search of a drifter which would take us to H.M. Aircraft Carrier *Janus*, out in Spithead. None of us knew what a drifter looked like. We saw a dirty-looking vessel named *Saucy Sue*, something like a tug, come alongside, but as it appeared to be run by civilians we ruled it out.

Davidson spotted the Commanders first.

"Good Lord, here come fourteen Admirals," we heard, and turned to see two Commanders approaching.

One of them returned our salute while the other eyed us with undisguised loathing. Then they climbed into the *Saucy Sue*.

"Remember the Navy don't like you," murmured Harvey to the upper air.

"That must be the drifter. I'll say we've boobed," said I.

"Twice. 'Cos we should have been on board first," said Davidson.

Then another Commander came into view, and Harvey drew us into a shed close to, saying we might as well let 'em all come now, and anyway he didn't want to salute much more because he'd felt his sleeve go in the last one.

"That'll teach you to be so dashed smart," we informed him.

Harvey said: "Look here, we'll pretend we've got it wrong. We'll go on last, and get off first," so we waited till the drifter began to draw in one gangway, and then climbed down the other. There were a few sailors on the deck, and all the Lt.-Commanders and Commanders were up in a glass house in front, with the man who was steering.

We decided unanimously to be democratic, and stay on the deck.

When we reached the *Janus*, we failed to get off first, because the Commanders were waiting, and they caught the guide rope and swung themselves in before we had realised that there wasn't going to be a gangway. Harvey and I got in all right, but Davidson missed his footing, and fell back into the arms of a burly Quartermaster. This so rattled him that he forgot to look for the Quarter Deck, which was lucky for him, because Harvey and I, after a miserable few seconds, had hastily saluted in the direction of an alley way. We discovered later that they kept the Quarter Deck miles away.

Then we were met by our Adjutant.

"Hullo! have a drink," he said.

The sight of his uniform, and evident familiarity with the surroundings, was almost comforting.

All around us whistles were blowing, men were shouting commands in a high sing-song voice, machinery was clanking, and there were what sounded like rushes of feet across a steel deck.

"What is it, fire or collision?" asked Harvey, hopefully.

The adjutant stared, then laughed.

"Oh, you'll soon get used to it. That's nothing, only Divisions."

"Come along, I'll show you your quarters," he said.

We followed him down a steel-floored alley-way and passed an open cabin door.

"H'm, pretty decent cabins," said Davidson.

"What?" said the Adjutant. "Oh, that! those are the Captain's quarters; you wait till you see yours."

He ran nimbly down a narrow steel ladder. I started to follow but hadn't noticed in the gloom a combing about nine inches high. My shin must have dented it. I yelled and blasphemed. The Adjutant laughed. "Oh, that's nothing. You'll soon get used to it."

Down below there was no daylight. Electric lights, an

atmosphere like a badly-ventilated cinema hall, and an increased roar of machinery. We went down another ladder. Harvey, Davidson and I climbed down rung by rung, stern first, while the Adjutant howled with laughter. "You'll soon get used to it," he said. Davidson eyed his back malevolently, and looked at me. "Blast him," he said.

The Adjutant opened a door and said, "There you are." We looked into a tiny, foul-smelling, electric-lighted cupboard, containing a bunk, a chest of drawers, and a grandfather's clock.*

"What's this?" we asked apprehensively.

"It's known as an 'Inboard Cabin.' One of yours, my boys; the other two are next door, just the same," he replied cheerfully.

"Isn't there any ventilation?" I asked.

"Well yes and no. You see it doesn't always work, and when it *does* work it generally covers your cabin with soot and stuff. Most people shove a sock in the pipe."

"Hell! I shall die," groaned Davidson.

"Oh, it's nothing. You'll soon get used to it," said the adjutant. Then he left us. Just in time.

"I'm beginning to dislike that fellow," said I meditatively.

Davidson was going through the motions of hitting a man in the eye.

Harvey said: "He's a perishing lousy lunatic and I hope his rabbit dies."

* * * * *

"Gott strafe the Navy," said Davidson.

"Hear, hear," agreed we.

"It's no joke, you know," he went on.

"We know," we chorused.

"These ladders—"

"Oh, Hell!" said Harvey, and I winced and caressed a shin tenderly.

"—You know the first one, the one with the ridge—"

"Don't remind us," murmured I, brokenly.

"Well, I've got the guillotine board pretty well taped now, so this morning I went down frontways."

"More fool you," "Asking for it," interrupted us.

"I did it very well first time," he went on, ignoring our interruptions, "but the second time I took it a bit faster, and half-way down the flaming thing deliberately tripped me up and two seconds later I was on my back on the deck with a practically broken spine!"

"That'll teach you," said Harvey. "It's no use, my boy, even the Ship knows we're R.A.F. and hates us."

"These ladders—" began I.

"All right, go on if you must," interrupted Harvey savagely.

"Steward, STEWARD—three gins."

"—This morning," I went on, "I was trying to get down from the flying deck—"

"So called because it is so seldom flown from or to," murmured Davidson.

"I'd just got into position at the top, stern first, when they did something funny with the ship and all at once the top rung wasn't there. With remarkable agility and presence of mind I saved myself, waited a minute, said a prayer, and began again. I'd got down two steps when I heard a pleasant Naval voice say, 'Do you mind if I go first, I'm on watch again in four hours,' so I let him go and watched him take the blinking think at a run without even looking—"

"I know, it's marvellous," said Harvey.

"They'd be worth a quid a minute on the stage," said Davidson.

"Well, just as I was beginning again, I spotted a Commander coming up, so I waited again. To cut a long story short, I was twenty-five minutes getting down that ladder."

"Now I ask you, what hope have we got if the beastly vessel sinks or catches fire?"

"None," said Davidson briefly.

"Steward—Three gins."

"That chart house—" began Harvey.

We both laughed. We knew what was coming.

"Oh, it's damned funny, I know, when I nearly break my neck, but let me tell you this—if the Air Council knew in what danger I'm in here, they'd fetch me off right away."

"Oh, quite so," we agreed. "Come on, let's hear about the chart house."

"Well, you know they blow a comic whistle when the railings round the lift are going down?"

"Yes."

"Well, to-day I was leaning against the chart house, keeping the old face and what not out of a perishing wind straight from the North Pole, when they blew a whistle, and down went the railings. Then another whistle blew. I thought

* The grandfather's clock turned out to be a folding washstand.

† The chart house on H.M.S. *Janus* can be let down flush with the deck when required.

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THE "HORSLEY."

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'Hullo, old boatswain seems to love his little penny whistle,' when suddenly the blinking chart room ran down into its little nest and left me staggering. And when I looked round, the whole ship's company was laughing at me!"

"I know. Damned insubordinate lot of flat-footed Jacks," said Davidson.

"Have you had any fun in the bathroom yet?" I asked.

"If you call it 'fun' when there's either all scalding-hot water or all cold, and the lights go out just when you've dropped the soap—we have!" said Harvey heatedly.

"It put on an extra verse for me this morning," I went on—"there was a fairly nifty cold supply, but only a trickle of hot, so I got in at the supply end and left the hot tap on so as to get what benefit I could from it where it was most wanted. Then just as I was reaching forward for the sponge a gush of absolutely boiling water got me right in the back. When I'd finished shrieking I expressed myself, if I may say so, extremely fluently and without repetition, for about a minute, and at the end of it the canvas screen was pulled away from one of the other baths and a naked Padre looked at me reproachfully and said, 'I know you didn't know I was here, but in any case no occasion could merit such filthy obscene language.' I asked him to let me turn a scalding tap straight onto his back and offered to bet him £5 he wouldn't say a benediction, but he was quite upset."

"That glory hole they call my 'cabin' has got me beaten," said Davidson. "I pulled out a sock from the ventilator yesterday and I'll swear it's been there since the ship was built and that it needed washing when it was put in. When I returned, after committing the relic solemnly to the deep, where I may say, it sank at once, and has by now probably poisoned the fish for a mile round, I found a blast of hot air decanting soot and dust into the cabin in a solid stream you could see. I tried to sleep there the first night, but, apart from the atmosphere, they start up a very noisy engine for the refrigerating plant at 10 p.m., and knock off at 8 a.m. and as you may know, that engine is just outside my door."

"And ours," we groaned in chorus.

"Steward—three cocktails."

"Have you a switch in your cabins?" asked Harvey.

"Yes."

"You're lucky. I have to pull the knob out to put out my light, and I've already been electrocuted seventeen times putting it back. My nerves are absolutely gone."

"I slept up in a boat below the flying deck one night," went on Davidson. "It was all right at first but perishing cold in the morning, and I felt a bit of a fool coming down from there in pyjamas, so last night I tried a boat on the Quarter Deck, and a comic patrol came and flashed a lantern in my face and asked me who I was. Also when I got up I ran into the Commander and he looked at me as though the sight of me made him sick—and I had silk pyjamas on too!—and later I got a message from the Adjutant to find sleeping quarters elsewhere."

The Steward came in. "Lunch is served, gentlemen."

"Hurrah," said I. "What'll you drink, chaps?"

"Gin," they said.

And gin it was.

"Great suffering Satan in Gehenna," wearily said Harvey as he crawled into the Ward room, threw his cap onto a table, and ordered a brandy and soda.

"What's up, what's up, what's up?" asked Davidson, and we stopped our game of ping-pong to listen.

"I'm orderly dog, as you know," began Harvey, "and it will afford me much amusement when it's your turn, you two poor mutts. Have you ever heard of Commander's Rounds?"

"No," said we.

"Well, you soon will. When Nelson commanded the *Britannia* at the Battle of Waterloo, it was the custom for the Commander to crawl round the ship at 10.0 p.m.—which by the way is a given number of bells, but I don't know why or how many—anyway, at that hour, preceded by a trumpeter who could only play four notes, and a seaman carrying a lantern, and a marine, and followed by another man with a lantern, and the ship's carpenter, and the Master-at-Arms, the Commander used to go round every hole and corner sounding the ship to see if it had sprung a leak, and looking to make sure that no naughty seaman had brought a woman on board. Well, my lads, he still does it!"

"Well, what about it?" said I stolidly, and

"Let him," handsomely allowed Davidson.

To tell the truth we didn't believe it. Not as described by Harvey, anyway.

"All right—or right," said Harvey, "but when I tell you that the R.A.F. orderly officer, as well as the Naval duty officer, go round with them, perhaps you'll wake up."

"The devil he does. So you've been round the jolly old ship, have you? about time too. I hope you can now find the hangar without having to ask your way," said Davidson brutally.

"Did the engine room make you sick?" asked I, half idly, half hopefully.

Harvey shook his head sadly at us.

"I'm sorry sea life has dulled your wits, you poor idiots—think, if it doesn't hurt too much—have you seen the Commander go up and down ladders?"

We had. Admiringly.

We tumbled to the catch quite quickly.

"But that's by daylight," said I eagerly.

"Does he go everywhere?" asked Davidson apprehensively.

Harvey smiled unkindly.

"My heart bleeds for you two," he said. "If anything, he's quicker at night, and he doesn't miss a single ladder in this ship! Look at my hands and clothes."

We looked.

His hands were black and oily, and his knees and back were filthy.

"I suppose you got lost in the furnace room," said Davidson bitterly; "pity they didn't push you in when you were there."

"I can understand a fellow sliding down ladders on his hands and chest or his hands and back, but I think it's mucky to do both," added I freezingly.

We were both apprehensive about this latest form of frightfulness.

"Honestly, I haven't exaggerated a bit," said Harvey seriously. "First comes the trumpeter, blowing frequent, then the first lantern bearer, then all the Staff, including you, and then the second lantern and the marine. It's . . . it's . . . magnificent. They go everywhere. I can assure you I've seen things and places to-night that I hadn't the slightest idea were in the ship."

"That we can well believe," said we scornfully.

"It's a hell of a big place down below, and its essential guts are like Dante's Inferno."

"How did you manage to keep up with the Commander?" I asked.

Harvey assumed an air of superiority.

"Oh, I'm pretty decent at ladders now," he said airily.

"Then where did you pick up all this filth?"

"Helping to pick a stoker up who'd fainted," he replied readily. Too readily.

"I suppose you gave him a piggy-back," said Davidson nastily, pointing to Harvey's disgraceful jacket.

"No. That was leaning against a dirty oil stove," was the cool reply.

There was a short silence. Then—

"Eleven. Time for bed," said I.

Davidson suddenly asked, "What've you been doing since ten, Harvey?"

Harvey looked slightly at a loss, and just then Duggan, the duty N.O., looked in.

"Hullo, Harvey, where did you get to?" said he.

Harvey started to reply but I jumped on him.

"Did Harvey go round the ship with you and the Commander to-night?" I asked, while Davidson helped me to hold Harvey down.

Duggan laughed. "Well, he began, but we lost him in the Stoker's flat and I haven't seen him since."

We looked at Harvey in silence. He grinned back.

"Will you tell us the truth if we let you up?" I asked.

He nodded. We let him up. He said:

"So that was the Stoker's flat, was it? Well, I'd navigated up and down at least six ladders by then, and I knew that, for me, the pace was too good to last—"

"Commander only going half speed, too," murmured Duggan.

"—So I slipped behind a pillar and let the procession proceed. My idea was to go back quietly the way we had come. You'll be surprised to hear that ten minutes later I found myself in the engine room. I pretended I was there on purpose (like a fool) so they insisted on showing me round, and I nearly fell in the engines three times. When I left I found myself in a completely new section of the ship, out of which there only seemed to be two exits—one down a perishing ladder about forty feet vertically down, and the other along a narrow gangway with nothing along one side to stop you going overboard. So I crawled along it on hands and knees, and eventually found myself in a sort of gallery overlooking the dear old hangar. I wandered about, looking for a way down, and at last I saw a sailor; so I asked him to direct me. He pointed out a ladder fastened so close to the side of the ship that you could only just get your toes over the rungs. I said 'No, my good man, I'm not a monkey; isn't there something easier?' So then he found a respectable ladder and at last I got down to the hangar. From there it was easy, which was just as well, because by then I was a shaken and demoralised troop."

We bought him another drink.

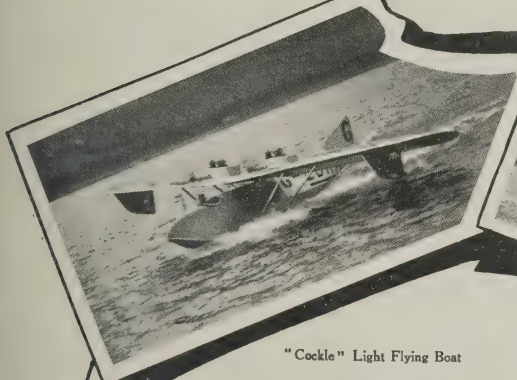
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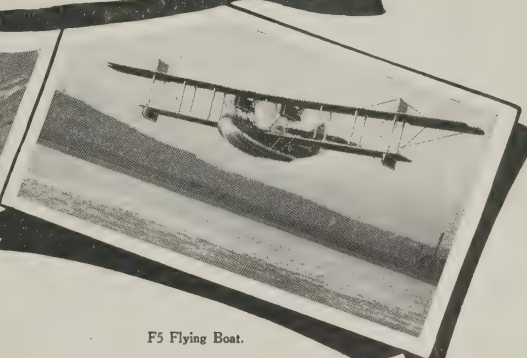
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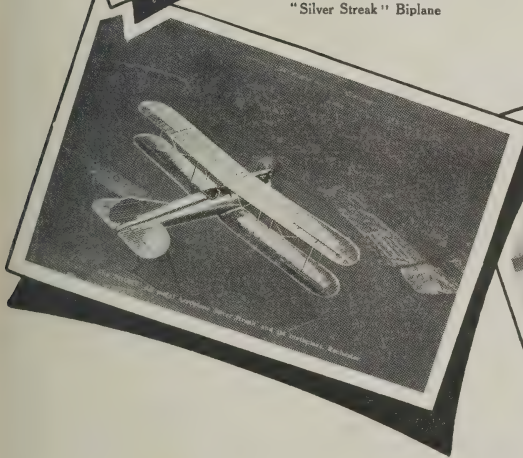
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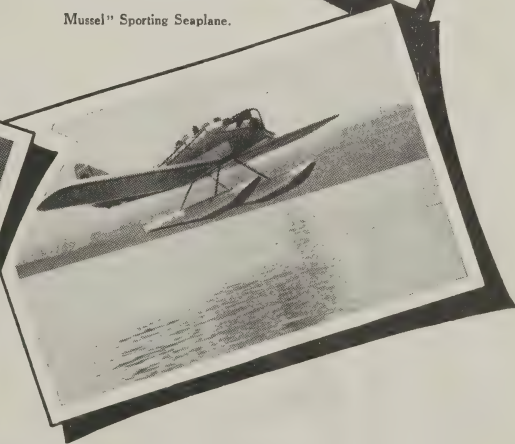
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U.S. NAVAL AVIATION.

The following extracts from the Annual Report for the year 1925-26, issued by the Chief of the Bureau of Aeronautics, U.S. Navy Department, reveal a number of very interesting facts concerning the progress of American Naval Aviation during the past year:—

During the year covered by this report progress has been made in Naval Aviation along the following lines:

(a) Improved designs of aircraft which are especially adapted to the needs of the mobile fleet have been completed.

(b) Two improved types of fighters, one built by the Curtiss Co., and one built by the Boeing Co., have been flight tested, and construction contracts placed for service use.

A special shipboard fighter built by the Wright Co. has been tested with three different types of engines, and valuable test data obtained. Specifications have been prepared for a special type of shipboard fighter, and a flight test competition is to be held during the 1927 fiscal year to determine the best plane for this purpose.

A contract has been placed for 20 Vought O-3 planes; this being a combination of the best features of the O-2 with certain features of the fighting plane.

An experimental order has been placed for two Vought O-2U-1 planes, which promise to be a marked improvement over the O-2.

A production order has been placed for 27 amphibians of the Loening type, with such modifications as experimental test, flight test, and service experience have proven desirable, or necessary.

The Glenn Martin T-3M₁s, of which 24 will be delivered early in the 1927 fiscal year, form an intermediate step between the S-3s and T-3M₂s. This contract was followed by one for 100 T-3M₂s, and it is believed that these planes, fitted with the Packard 3A-2500 engine, will go far to meet the requirements of the service as regards a combined torpedo, bombing, and scouting plane.

(c) As the result of flight-test competition, three contracts for Consolidated NY-1 training planes were placed during the past year. During the coming year it is planned to hold a training-plane competition with a view to providing sufficient training planes to meet the Navy's current needs in this type of plane. (It is believed that the Consolidated NY-1 is a marked improvement over any other training plane that has ever been delivered to the naval service.)

(d) An improved patrol seaplane, the PN-10, a development of the PN-9, has been produced and will be ready for experimental test flight and service flights early in the fiscal year of 1927. The development of metal wings for this type of plane is progressing rapidly and this experimental set of wings will be available for test early in the next fiscal year.

(e) The design of ship-board catapults has been materially improved and the use of these catapults has been extended in the fleet.

(f) Marked improvements in the detail of designs of engines, propellers, and accessories, have been made; the outstanding feature from the engine point of view being the Pratt and Whitney Wasp engine, air-cooled, which has been flight tested in several types of planes, and which is now undergoing service test.

(g) Development of arresting gear for carrier work has continued with satisfactory progress on board the experimental carrier *Langley*, where a remarkable record of landings made by the aircraft operating squadrons Battle Fleet has been established. In addition to the work done on the *Langley*, a ground installation has been practically completed at Hampton Roads with improved design and equipment, where training work for the carriers will take place.

(h) Determined effort has been made to reduce accidents, and thereby effect saving of personnel and material. The number of accidents per flying hour has been materially reduced below that of preceding years.

(i) Operations of aircraft with the fleet during the past year have been on a materially greater scale than any preceding year, and the year's performance in the operating units of the fleet has been such as to cause marked gratification on the part of the entire naval service with regard to the progress made.

PERSONNEL.

The net gain to the Navy in naval aviators for the fiscal year 1926 is 44. This rate of increase is not sufficient and a programme of training which calls for assignment of four classes per annum at Pensacola has been evolved.

A course of aviation instruction for midshipmen has been added to the curriculum of the Naval Academy and the class graduated in June, 1926, goes out to the service as officers trained in the rudiments of aviation.

	July 1, 1922.	July 1, 1923.	July 1, 1924.	July 1, 1925.	July 1, 1926.
Naval aviators	314	326	328	382	446
Student naval aviators	61	33	47	35	71
Line ground officers	105	91	42	17	14
Staff ground officers	115	134	101	99	129
Naval observers	—	6	5	5	11
Officers having flight orders	—	10	13	16	19
Total	595	600	536	554	670

AIRCRAFT IN THE FLEET.

The mission of the Bureau of Aeronautics, so far as material is concerned, is to furnish to the Fleet satisfactory types of planes for naval aeronautical development and use for operations, primarily, from ships of the Fleet.

The Fleet requires planes of the following types:

(a) Fighting planes: Small, easily handled planes of high performance, based upon battleships and aircraft carriers, used primarily for offensive by attacking enemy aircraft and for protection of bombing and torpedo planes.

(b) Observation planes: Somewhat larger planes, capable of keeping the air for several hours at a time. Employed for spotting gunfire from battleships, and as scouting planes from light cruisers.

(c) Torpedo and bombing and scouting planes: Convertible or amphibian airplanes, capable of carrying large military loads consisting of a torpedo or bombs. When not so loaded,

equivalent weight of gas for long-distance scouting may be substituted.

(d) Patrol planes: Large, seaworthy, long-distance scouting planes, based ashore and used for coast defence, patrol, and reconnaissance.

The development of all types has been prosecuted throughout the year, and material progress has been made, but the major design effort has been concentrated on fighters and the three-purpose—bomber, torpedo, and scout airplane.

In addition to the above the bureau also has made design studies of folding wings for the Loening OL amphibian airplanes, for a three-engine (air-cooled) monoplane patrol boat, for a flight and gunner training airplane, a number of float designs, and several other projects of less importance.

The study of fighters has covered a wide range for both single place and two place, equipped with air-cooled and water-cooled engines. The wings were made straight, sweptback, sweptforward, tapered, and with various combinations of these, all to obtain satisfactory balance and the best possible vision for deck landing and fighting. Biplane and monoplane arrangements with and without flaps for reducing the landing speed were investigated. Emergency flotation gear, including air bags, tanks, and water-tight fuselages have been applied to some of these fighters.

Special consideration has been given by the bureau to flotation gear for naval planes, particularly when equipped with landing wheels. This has been proved to be a most difficult and intricate problem and although very definite advances have been made, the bureau has not yet arrived at a satisfactory and practicable solution of the problem.

In connection with torpedo bomber type developments, there is a marked tendency toward twin-engine types. If it can be demonstrated that the airplane, under average service conditions, will fly satisfactorily with only one engine operating a very definite development of this type will follow.

Simultaneously with the development of types of aircraft for fleet use, the problem of stowage of aircraft aboard ships of the fleet has received the most careful consideration. The large flying-boats working from harbours and bases on shore have proven most serviceable to fulfil a very definite mission, but in order to carry fighting, spotting, and torpedo planes with the fleet it is necessary to carry them on combatant ships or on special aircraft carriers. Aircraft carried on combatant ships must be small and compact for stowage on board. The problem of launching aircraft from ships has been solved by the employment of catapults. The installation of catapults on various types of ships has been authorised by the department and they have been eminently satisfactory. Various types have been service tested, the latest being a "powder" catapult, i.e., one that depends on a powder charge for the propulsive power. It is not yet practicable to provide sufficient deck space for planes to return and land on board the ships to which they are assigned, except in the case of aircraft carriers. Hence, this requires that planes must be designed as seaplanes to alight on the water or they must alight on the flush deck of an airplane carrier.

LAUNCHING.

The installation of a new type catapult has been completed. There are now in the fleet 12 battleships each equipped with 1 catapult and 10 scout cruisers equipped with two each.

Since the installation of a new type of catapult on one of the battleships, two other catapults, modifications of the first, have been constructed and installed on two more ships. Four other catapults have been built, a further modification of the first. One of the new types is equipped to launch an amphibian plane. This plane will be capable of taking off from either a catapult or an aircraft carrier and may land either on a carrier or on the water alongside a ship, serviced, and sent out again on its mission.

A new type of launching car, better able to withstand exposure and easier to load, has been designed and built and will be tested in the near future.

AIRCRAFT CARRIERS.

The development of arresting equipment for aircraft carriers has progressed with the assistance of the U.S.S. *Langley* and the *Lexington-Saratoga* detachment at the naval air station, Hampton Roads, Va.

The *Langley's* equipment has been further perfected and has reached a very gratifying degree of efficiency in reliability and speed of operation. Night landing experiments have been conducted under favourable and adverse weather conditions and valuable information obtained as to the possibilities of night operations from aircraft carriers and the deck-lighting equipment required.

LIGHTER THAN AIR.

Recommendations regarding a rigid airship programme were made to the Navy Department and were considered by the General Board. Subsequently, hearings in Congress on a Bill to replace the *Shenandoah* resulted in legislative authorisation for two large rigid airships of a size suitable for operations with the Fleet, these airships to be constructed in the United States.

An experimental 200,000 cu. ft. "metal-clad" airship was authorised by Congress and funds to cover its purchase were added by Congress to the current Navy Appropriation Bill. The contract for this airship has recently been placed and the work of construction will start as soon as the contractor can assemble the necessary equipment and personnel.

Excellent progress has been made in the development of mechanical devices for (a) landing a large airship in "light" condition and (b) handling a large airship in and out of her shed. These devices when perfected will not only reduce the number of men required but will permit the airship to be handled under more adverse weather conditions than heretofore considered safe, thus increasing the amount of available flying hours.

HELIUM.

The dwindling supply of helium gas from the Petrolia field is a matter for concern and immediate action. Production costs increase as the supply of helium gas decreases. Access to one of the new fields which have been located is a necessity if the helium supply is to be kept up to requirements, and will probably result in economy as well, since the production costs will be lowered on account of the larger quantity of gas which can be processed.

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A GERMAN AIR SURVEY MACHINE.

The Ernst Heinkel Flugzeugwerke of Warnemünde have just produced a machine designed specially for air survey and for experimental wireless work. This machine, known as the H.D.20, is a rigidly-braced twin-engined biplane, fitted with two Wright Whirlwind radial air-cooled engines each of 200 h.p.

The H.D.20 was publicly demonstrated on Sept. 21 at the Tempelhofer Aerodrome and appears to have given an excellent impression. Some surprise has been expressed in German circles because this machine which is intended purely for civil purposes was looped and otherwise stunted by its pilot.

The machine has a steel tube fuselage with seats for a crew of three in tandem. The front seat in the extreme nose gives an entirely unobstructed view forward, which is very desirable for navigational purposes in a survey machine. The pilot's seat is apparently behind the wings, with the third cockpit between the two already mentioned.

The undercarriage is of the type without axle. There are two Vees, one on each side, attached to the lower edges of the fuselage. The front leg of each Vee is telescopic. From the apex of each Vee a third strut runs to the upper edge of the fuselage in front of the lower wing.

Each side of the undercarriage thus consists of a deformable tripod, and oblique photographs can be taken forward from the rear cockpit without any part of the undercarriage interfering.

The wings are of timber construction. The lower wing is of very considerably less span than the upper. A set of N struts runs from the upper edge of the fuselage on each side to about one-third of the way out along the lower wing. From the bracing points on the lower front spar only inclined struts are taken to front and rear spars of the upper wing.

The engines are mounted above the lower wing between the two sets of bracing struts. Oil-tanks are contained in a stream-lined cowling behind each engine, and the engine units are rapidly detachable. Petrol is carried in two tanks in the upper wing. Aircrews of the Reed type are used.

Both tail-plane and fin are adjustable from the pilot's seat while in the air. The fin adjustment is sufficient to permit of straight flight with one engine stopped and without load on the pilot's leg.

A float undercarriage, interchangeable with the land one can be supplied.

The total capacity of the machine, including fuel for three hours, is about 1,450 lbs. With a crew of two this leaves about 500 lbs., or with three up about 320 lbs. available for surveying equipment. As the machine has a power loading of under 11 lbs. per h.p. and a fairly low landing speed it should be capable of flying on one engine. The all-round performances are quite fair, and the H.D.20 therefore would seem to be a useful and relatively economical machine for the work for which it is intended.

SPECIFICATION.

Span (top)	12.8 m. (42 ft. 0 in.)	Weight loaded	1,950 kg. (4,300 lbs.)
Span (bottom)	8.8 m. (28 ft. 10 in.)	Wing loading ...	49 kg./sq. m. (10 lbs./sq. ft.)
Length	9.45 m. (31 ft. 0 in.)	Power loading ...	4.88 kg./h.p. (10.7 lbs./h.p.)
Height	3.92 m. (12 ft. 10 in.)	Maximum speed ...	195 km.h. (121 m.p.h.)
Wing area	39.8 sq. ft. (428 sq. ft.)	Landing speed	85 km.h. (53 m.p.h.)
Weight empty	1,300 kg. (2,870 lbs.)	Climb to 3,000 m.	13 mins. (9,840 ft.)
		Ceiling ...	6,000 m. (19,650 ft.)

OFFICIAL RECOGNITION.

It is announced that the Aircraft Operating Co. Ltd. has received permission to style themselves "Contractors to the Ordnance Survey" as the result of the recent experiment this company carried out for them at Eastbourne.

This permission, coming as it does, from the producers of the finest maps in the world, marks a very important step in the development of air survey work, and recognition by such an authority is a fact of which the Aircraft Operating Co. Ltd. in particular, and everybody interested in aerial survey work in general, may well be proud.

PIONEER TURN INDICATORS.

The Pioneer Instrument Co., of 754, Lexington Avenue, Brooklyn, N.Y., have just issued a new edition of a booklet describing the Pioneer Turn Indicator.

This instrument is of the gyroscopic type, with motive power supplied by a Venturi tube, mounted, preferably, in the slip stream. The turn indicator proper is combined with a bank indicator in the usual way.

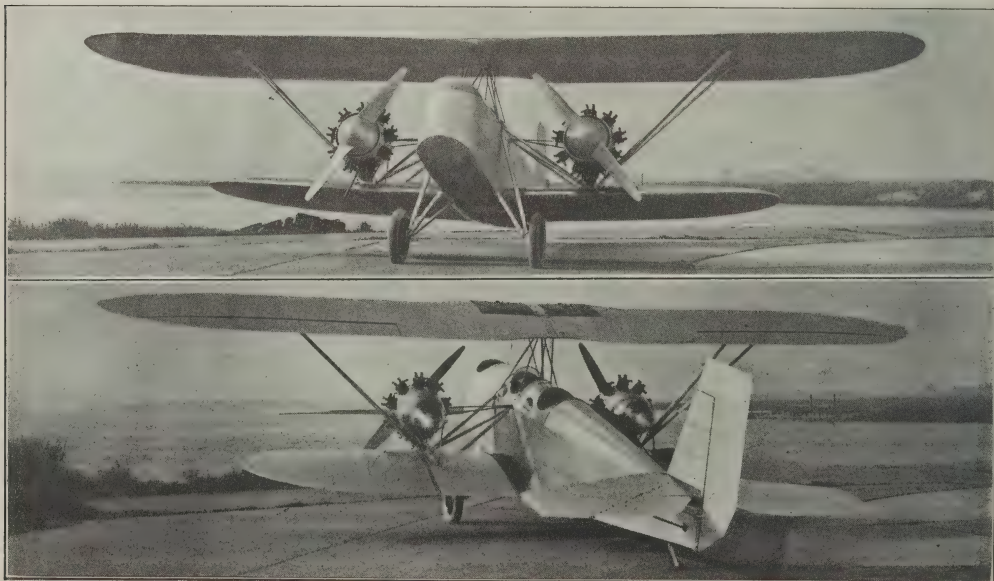
Three slightly different types are produced to meet various requirements. This booklet gives outline drawings of these, sufficiently detailed, to permit of the design of mountings, etc., together with weights of the various types.

The Pioneer Turn Indicator is apparently very compact, complete with Venturi tubes, weighs between 1.5 and 2.0 lbs., and is sold at from \$125 to \$135.

This type of instrument is standard service equipment in the U.S. Army and Navy Air Services, the U.S. Post Office Air Mail, the majority of American Air Transport services, and the Air Services of six foreign Powers.

A FRANCO-GERMAN AGREEMENT.

An agreement has been reached between the French and German Governments whereby individual flights by private aeroplanes of either country will be permitted without previous authorisation over the territory of the other country.



The Heinkel H.D.20, an aeroplane designed specially for air survey work. It is fitted with two Wright Whirlwind air-cooled engines of 200 h.p. each.



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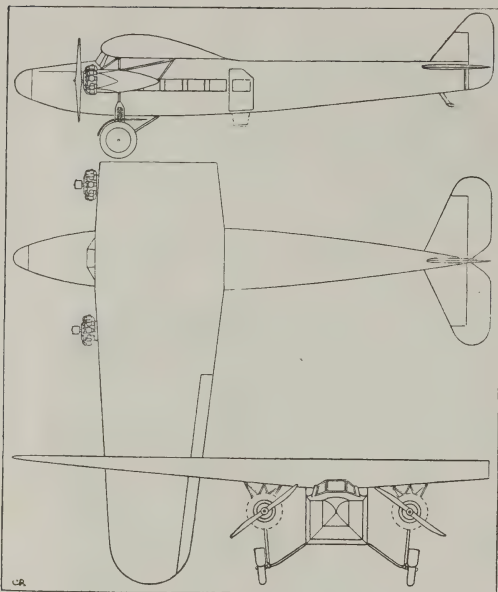
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THE FOKKER F.VIII.



The N.V. Nederlandsche Vliegtuigen Fabrik is just completing a new commercial monoplane to the order of the K.L.M. Company for use on their lines during the coming year. This machine, known as the F.VIII, is a direct development of the F.VII and F.VII-3m., and will be fitted with two Bristol Jupiter VI engines, one on either side of the fuselage under the wing.

The F.VIII will have accommodation for 15 passengers, a pilot and navigator, and in addition to the large luggage compartment behind the cabin, there is a second compartment in the nose of the machine.

The cabin will be sufficiently wide to seat the passengers in five rows of three.

The method of mounting the engines is similar to that used on the F.VII-3m.

It is claimed that with full load the F.VIII, flying on one of its two engines, will be able to maintain level flight at an altitude of 500 m.

SPECIFICATION.

Span	23 m.	Wing loading ...	61 kgs./m ² .
Length	16.8 m.	Power loading	6.2 kgs./h.p.
Height	4.2 m.	Speed max.	190 km.p.h.
Wing area	82 sq. m.	Speed cruising ...	160 km.p.h.
Weight empty	2,800 kgs.	Speed min.	80 km.p.h.
Useful load :		Climb to 1,000 m. ...	5 mins.
Crew	270 kgs.	Climb to 2,000 m. ...	12 mins.
Fuel and oil	600 kgs.	Climb to 3,000 m. ...	22 mins.
Paying load ...	1,330 kgs.	Climb to 4,000 m. ...	42 mins.
Weight loaded	5,000 kgs.	Ceiling	4,600 m.

THE ROYAL AERONAUTICAL SOCIETY.

In the notices concerning the Royal Aeronautical Society, published in *THE AEROPLANE* of Jan. 12, the name of the opener of the Informal Discussion on Feb. 15 was given as Mr. Dipon. This should have been Mr. Dyson.

Mr. W. H. Dyson is one of the principal Technical Officers of the Dept. of Scientific Research, The Air Ministry.

A PROBLEM IN ETHICS.

A cutting from an American paper gives the information that Mr. Charles Widmer, a pilot of the Pacific Air Transport Company, which runs the air mails from Seattle, Wash., to Los Angeles, has been refused permission to fly from one of the aerodromes on the airway because, for some reason not reported, he quit an air-mail machine by parachute and left his passenger to crash and be killed. The assumption is that the passenger had no parachute.

This raises a point which is worthy of the consideration of all pilots. Apparently our passenger-carrying pilots are not equipped with parachutes, so the question does not arise immediately in connection with Imperial Airways. But it does raise the question whether I.A. pilots should wear parachutes or not.

The obvious objection to their doing so is that if the pilots wore parachutes, even their own property, the passengers also would have to wear parachutes. And fitting each passenger into parachute harness before starting would do about as much to destroy confidence as if every passenger on a steamship were compelled to wear a lifebelt day and night, as we were supposed to do when seafaring during the War 1914-18.

One good reason for fitting pilots with parachutes and not so equipping the passengers, the majority of whom in any case would never use the parachutes properly, is that which Mr. Koolhoven humorously advanced, when he designed the first real passenger-carrying aeroplane, the Big B.A.T., F.K. 27, immediately after the Armistice in 1918. He put his passengers in the cabin immediately behind the engine and perched the pilot out near the tail. One remarked, when he showed one the first general arrangement drawing, that in a crash he would kill all his passengers and the pilot would be the sole survivor. "Then," said he, "I should have an intelligent explanation of how the accident happened."

That is all very well, but the ethical point arises, in such a case as that of Mr. Widmer, whether if a machine is bound to crash in any case, the pilot can, on a point of honour, abandon his passenger to certain death, and save himself.

As a matter of pure common sense, there is no earthly reason why two men should die when one can save himself. There is not even the alternative of one man handing his parachute over to another, or even of the two sharing one parachute, which one believes did happen in some extraordinary manner in an exhibition balloon ascent before the War.

The question of what a pilot ought to do under the circumstances is one which will probably be debated, with considerable heat among aviators. And of course the obvious reply is that somebody ought to be shot for letting the passenger go up without a parachute.

THE THEORY OF THE AEROFOIL.

"The Elements of Aerofoil and Airscrew Theory." By H. Glauert. Published by the Cambridge University Press. Price 14s. net.

The author in his preface states :—"The object of this book is to give an account of aerofoil and airscrew theory in a form suitable for students who do not possess a previous knowledge of hydrodynamics." The modern theory of aerofoils is essentially a specialised development from the general theory of hydrodynamics, and is treated as such in this book. Consequently the author is compelled in the opening chapters to outline those sections of hydrodynamics which are involved in aerofoil and airscrew theory before attacking the special case of the aerofoil.

That he should have succeeded in doing so, and in giving an intelligible and orderly idea of his subject in the limited space of 220 odd pages must be accounted a distinct achievement.

The theory of the aerofoil—like the whole of hydrodynamic theory—is essentially mathematical, and although the author has kept the mathematical analysis involved as simple as possible, and has in certain instances—notably in regard to the processes of conformal transformation—given an unusually lucid picture of the physical meaning of certain mathematical stratagems involved in aerofoil theory, the work necessarily calls for a respectable mathematical equipment on the part of the reader if it is to be thoroughly digested.

Mr. Glauert has succeeded very admirably in arranging the various sections of his subject in such a manner as to give a clear outline of the present state of aerodynamic theory. Heretofore the literature of the subject—in English at any rate—has consisted almost entirely of detailed accounts of isolated aspects of aerodynamic theory, and very particularly in the case of those who are unable to devote a large proportion of their time to study it has been difficult to get a clear idea of how the results of the work of various investigators and research workers could be combined to give a composite idea of the behaviour of a real aerofoil in a real fluid.

Although at the present no satisfactory and complete theory of the real aerofoil can be said to exist, Mr. Glauert's outline of recent research work on the problems of viscous flow, combined with his account of the better known Vortex theory does give a clearer view of how far knowledge on this subject has progressed in recent years than one has previously met in print.

The book should be of considerable value, not only to the students for whom it is primarily intended, but to those aeronautical engineers who desire some such general picture of the present state of aerodynamic theory, but who have lacked the time or the opportunity to form it for themselves from a first-hand study of the research work upon which it must be based.—W. H. S.

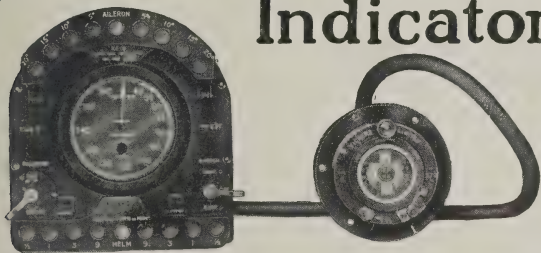
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WITH BANJULELE BEYOND BAGHDAD.

According to *The Times* an enthusiastic public welcome was given at the Drigh Road aerodrome, Karachi, on Jan. 11, to Mr. T. Neville Stack and Mr. B. S. Leete, who reached Karachi on Jan. 8 in two D.H. Moths after having flown from London.

The attendance was the largest seen at any public gathering at Karachi, special train and omnibus services being necessary to convey the throngs of people to the R.A.F. aerodrome.

The programme opened with an aerial display by the R.A.F. in which Mr. Stack and Mr. Leete took part.

After the display the two pilots were welcomed by Mr. Jamshed N. R. Mehta, President of the Karachi Municipality, who was formally introduced by Wing Cdr. R. J. Bone, C.B.E., D.S.O., Officer Commanding the Aircraft Depot, Karachi.

Mr. Jamshed Mehta conveyed to Mr. Stack and Mr. Leete a resolution passed by the Karachi Municipality offering their hearty congratulations on so remarkable an achievement.

He then handed Mr. Stack and Mr. Leete each a handsome casket suitably inscribed as a memento of the occasion, after which the two pilots were garlanded by many people amid loud cheers from the spectators.

THE FLYING CLUBS.

The London Aeroplane Club.

Report for week ending Jan. 16.

Total flying time was 22 hrs. 55 mins.

The following members had flying instruction:—E. L. Winter, J. J. Hofer, O. J. Tapper, G. H. B. Madocks, C. R. Campkin, F. C. Elford, G. N. Howe, M. P. Susman, H. Solomon, A. E. Lingard, W. Hay, A. J. Richardson, H. M. Samuelson, G. C. Bonner, N. H. M. Watkins, H. O. Gugenheim, G. H. Saxon Mills, Miss Fletcher, E. J. B. King, L. G. Sykes, C. H. Swan, A. F. Wallace, F. Clarkson, G. R. Onions, J. H. Saffery, J. W. Whyldaw.

The following members flew solo:—O. J. Tapper, H. Spooner, W. Hay, K. V. Wright, C. E. Murrell, N. Jones, S. O. Bradshaw, J. A. R. Stevenson, A. R. Ogston, G. H. Craig, J. H. Saffery.

The following members had joy-rides:—D. A. Wilson, H. J. Greenland, S. O. Bradshaw, G. Onions, F. F. Stephens, W. R. Simons, F. F. Stephens, G. H. Craig.

G-EBKT, which was taken over on Monday, 10th inst., to replace G-EENP, soon got into trouble. It was being flown solo by Capt. H. Spooner on the 11th inst. In making a forced landing he got into a ploughed portion of a field and the machine turned completely over. The damage, however, was very slight and the machine was again in commission during the week-end.

The Hampshire Aeroplane Club.

Report for week ending Friday, Jan. 14.

Total flying time 10 hrs. 25 mins., made up of: Instruction flying 8 hrs. 40 mins. Passenger flying 1 hr. 15 mins. Solo flying 30 mins. The following members had instruction:—Lieut. Cadell, R.N., 2 hrs. 5 mins., Lieut. Heinemann, R.N., 1 hr. 40 mins., Hon. H. R. Grosvenor 1 hr. 10 mins., Dobson 50 mins., Abel 45 mins., Somerset 40 mins., Señor de la Cierwa 40 mins., Courtney 10 mins., Graham 10 mins., Nicholson 5 mins.

The following members had joy-rides:—Mrs. C. B. Fry 35 mins., Mrs. Cadell 10 mins., Miss B. Mossop 10 mins., Capt. Andrews 10 mins., Mr. E. V. Somerset 10 mins.

The soloists were Cooper 20 mins., and Fry 10 mins.

The Lancashire Aero Club.

Report for week ending Jan. 15.

Total flying time for the week 16 hrs. 15 mins., made up as follows:—

Dual with Mr. Brown: Messrs. Nelson 1 hr. 5 mins., Abdalla, Shiers and MacNair 25 mins. each, Miss Brown 30 mins., Messrs. Gattrell 25 mins., Slater 20 mins., Dickinson and Forshaw 15 mins. each.

Solo: Messrs. Wade 2 hrs. 20 mins., Costa 2 hrs., Birley 1 hr. 15 mins., Twemlow 1 hr., Michelson 30 mins., Abdalla 25 mins., Goodfellow 20 mins.

Joy-rides: With Mr. Costa—Mr. Giorgi 30 mins., Mr. Abdalla 20 mins. With Mr. Cantrill—Mr. Williamson 20 mins., Mr. and Mrs. Proctor 10 mins. each. With Mr. Lacayo—Mr. Hardy 5 mins. With Mr. Goodfellow—Mr. Williams 15 mins.

During the week Mr. Birley, Mr. Twemlow and Dr. Wade have all successfully accomplished their height tests. One is filled with admiration for these hardy fellows. To the North lies Rivington Pike with other nasty protruberances round about; to the East, South-East and North-East lie the Yorkshire and Derbyshire ranges; to the South lies the high ground of Staffordshire and the Potteries, while to the West lie the Frodsham hills. With the clouds resting comfortably on all these excrescences and only small gaps of blue to climb into these brave birdmen, armed only with an aneroid and a few days' iron rations, set out day after day in search of their "A" Licences. One can only say that they earn them. The palm this week, however, must be awarded to Mr. Costa, who, competing in the height contest, climbed a Moth until the aneroid struck work and, in the words of the old tale, a little dicky bird came out and sang "Nearer my God to Thee."

It is really scandalous the way that important news items are kept back from the correspondent. Immediately on our return from Switzerland we rang up the aerodrome to inquire how much crashery had been committed in our absence. We were told "none." On arrival at the aerodrome we found LV in the hangar with the undercarriage removed and the fuselage stripped. "Aha," we said, pointing the accusing finger, "a crash." "Crash, Sir?" says the ground engineer with a pained expression, "why, bless your heart, Sir, that's nobbut a heavy atterrisage."

The Midland Aero Club.

Report for week ending Jan. 15.

Total flying time was 5 hrs. 28 mins.

The following members made solo flights:—E. J. Brighton, R. I. Jackson, H. J. Willis, W. Swann.

The following received dual instruction:—F. Coxhill, C. Fellowes.

The following had passenger flights with Mr. Brighton:—F. Coxhill, G. Aldridge, L. V. Mann.

On Saturday Mr. Brighton made his first flight on the Austin Whippet.

During the absence of Capt. McDonough through illness, assistance has been rendered by one of the Club members, Flg. Off. A. I. Glover, of the Royal Air Force Reserve.

The Newcastle-upon-Tyne Aero Club.

Report for week ending Jan. 9.

Total time flown 23 hrs. 25 mins. Dual 10 hrs. 15 mins. Solo (Training) 35 mins. "A" Pilots 9 hrs. 30 mins. Joy-rides 50 mins. Avro 2 hrs. 15 mins.

The following flew under instruction with Mr. J. D. Parkinson: Miss Leathart, Messrs. Wardill, Turnbull, Stawart, A. Bell.

Mr. Mathews had secondary dual and Mr. H. Ellis advanced dual.

"A" Pilots who flew: Mr. J. D. Irving, Mr. R. N. Thompson with Miss Douglas, Miss Skipley, Miss Wilson, Miss Cochran and Everill. Mr. C. Thompson with Mrs. Heslop and Mr. H. H. Leech.

Mr. A. Bell was launched during the week.

The following flights were made on the Avro: Mr. H. H. Leech with Mr. Gibson, Mr. W. Baxter Ellis with Miss Dunford, Mrs. Ellis and Mr. and Mrs. Morgan, Mr. P. Forsyth Heppell with Mr. Thirlwell and Mr. H. Ellis, Mr. N. S. Todd with Mr. J. Bell and Mr. A. Bell. Mr. Parkinson also carried out some tests and joy-rides.

Report for week ending Sunday, Jan. 16.

Total flying time 25 hrs. 40 mins. Dual instruction 8 hrs. 50 mins. Solo (Training) 9 hrs. 45 mins. "A" Pilots 5 hrs. 25 mins. Avro 1 hr. 40 mins.

The following members flew under instruction: Miss Leathart, Messrs. Bainbridge, Stawart, Wardill, Rasmussen, Turnbull.

Solo training: Miss Leathart, Mr. Stawart, Mr. Mathews and Mr. A. Bell.

Miss Leathart and Mr. Stawart were launched during the week.

"A" Pilots: Lieut. A. P. C. Hanney, Mr. H. H. Leech, Mr. H. Ellis, Mr. J. D. Irving with Mr. Pike, Lord Ossulton with Mr. A. Bell, Mr. R. N. Thompson with Mr. E. Ellis, Mr. C. Thompson with Mrs. Heslop, Mr. R. N. Thompson with Mr. Brown, Mr. F. H. Phillips. Mr. J. D. Parkinson flew with Mr. Shaun Glenville as passenger.

Mr. Parkinson flew the Avro with the following among his passengers: Miss Kemp, Mr. L. M. Middleton, Mr. J. M. Kennedy and Mr. Meisegaas.

The Yorkshire Aeroplane Club.

Report for the week ending Jan. 14, 1927.

The Club reopened after the Christmas vacation on Wednesday, Jan. 5, though no flying was possible until the 9th.

The time flown for the week only amounted to 1 hr. 30 mins., consisting of 1 hr. 5 mins. solo, 15 mins. dual, and a test flight occupying 10 mins.

Mr. Elam received the 15 mins' instruction, while the times for the soloists were as follows:—

Messrs. Carter (with Mann) 40 mins., Fielden (with Wilson) 20 mins., Watson 5 mins., and Wood 10 mins.

Given some good weather this week-end we hope to be able to record in next week's notes that several more of our members have successfully completed their tests for the "A" licence, having arranged for Mr. Loton to come over on Sunday to observe for them.—R. O. L.

The Sydney (N.S.W.) Club.

Report for week ending Nov. 6, 1926.

Total flying time 18 hrs. 55 mins., which included 10 hrs. 55 mins. solo flying and 7 hrs. 45 mins. pilot members flying. There was no dual instruction.

Report for week ending Nov. 13, 1926.

Total flying amounted to 9 hrs. 10 mins., which included 1 hr. 55 mins. pupil solo flying and 7 hrs. 15 mins. pilot members flying. There was no dual instruction.

Report for week ending Nov. 20, 1926.

Total flying time 16 hrs. 45 mins., which included 8 hrs. 30 mins. dual instruction, 40 mins. pupils solo flying and 7 hrs. 5 mins. pilot members flying.

Report for week ending Nov. 27, 1926.

Total flying time 9 hrs. 20 mins., including 3 hrs. 10 mins. dual instruction and 3 hrs. 25 mins. pilot members flying.

Report for week ending Dec. 4, 1926.

Total flying time 23 hrs. 20 mins., which included 10 hrs. 20 mins. dual instruction, 35 mins. pupils solo flying, and 11 hrs. 35 mins. pupil members flying.

The Annual Meeting of the Club was held at the Allora Café on Nov. 24 and was attended by over 70 members. The ballot for the election of the Committee resulted in the following seven members being chosen to sit for the forthcoming year: Sir Keith Smith, Messrs. G. F. Hughes, H. W. Ross, C. M. Chateau, L. H. Holden, R. W. Perkins, and S. L. Tyler.

The new Committee held its first meeting on Nov. 30 and it appointed the following officers for 1927: President, G. F. Hughes; Hon. Secretary, R. M. King; Hon. Treasurers, P. J. Taylor and G. N. Mills; Representatives on the Council of the Australian Aero Club, Sir Keith Smith and R. W. Perkins.

Mr. R. E. Beaton, the Club's Ground Engineer, having resigned, the Committee have appointed Mr. F. R. Mitchell to take his place.

The Club accepted the generous offer of the Motor Traders' Association of a stand at the Motor Show held at the Sydney Show Ground between Jan. 14–22, 1927. A D.H. Moth and an A.D.C. Cirrus engine were shown.

The Club's first lady pupils, Mrs. Follett and Mrs. Bryant, had their first instruction on Nov. 15 and are making very satisfactory progress.

The victory of "Wired-Type" Tyre Equipment DUNLOP

WIRED-TYPE TYRES AND WELL-BASE RIMS
are standardised by nearly all British car manufacturers.

They are now being fitted to more and more *motor cycles*—after their convincing performance in the 1926 T.T Races.

And—they are also conquering in the field of aircraft construction. Leading *aeroplane manufacturers* are selecting Dunlop Wired equipment—and they demand above all things *safety*.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

A SUPERMARINE AFFAIR.

On Jan. 7 the Supermarine Sports and Social Club held their third annual *conversazione* at Thornycroft's Institute, Woolston, Southampton.

The event was the biggest ever attempted by a local firm for the benefit of its employes, and over 700 members and guests were present—an increase of more than one hundred on last year's total.

The evening's entertainments included two concerts, a "Stupendous Super-Song Scena," entitled "S.O.S.," dancing, a fancy-dress parade, competitions, and finally a distribution of prizes for the sports events of the past year.

The "Stupendous Super-Song Scena, S.O.S.," was written mainly by Sqn. Commander J. Bird, the energetic Managing Director of the firm, and in his prologue announced that this burlesque was organised and produced in the astoundingly short time of seven minutes, thus beating the world's record made by Supermarine when the Southampton was produced in seven months, and preventing another possible record when the *Seamew* is produced in seven years.

During the presentation of prizes, Commander Bird, in a more serious vein, reviewed the activities of the various sports clubs during the year.

Outstanding events had been the opening of a new pavilion for the Cricket Section, the provision of a third court for the Tennis Section, and the building of a new galley, the "Volunteer," for the Rowing Section. He mentioned that it was hoped that in the coming season it would be possible to build a new gig and also to hold a full half-day regatta.

Commander Bird later referred to the scheme for the education of the firm's apprentices, which had been in operation just over a year. The reports of the headmasters, he said, were very satisfactory. Forty apprentices attended regularly evening schools at the Institute and elementary schools. Twenty of them had passed the prescribed examination, which had entitled them to attend University College one day per week. Six of these twenty had done exceptionally well and had gained a 1st class exhibition, and eight had won a 2nd class exhibition, and two had gained exhibitions at the elementary evening classes.

A vote of thanks to Commander Bird and the other directors was heartily accorded, on the motion of Mr. C. W. Mann, seconded by Mr. T. A. Nickalls.

Dancing was then resumed until the early hours of the morning.

Among those present at the *conversazione* were Messrs. Matthew J. Jarvis, J. Reynolds Hole, R. J. Mitchell, C. R. Grav, W. T. Elliott, A. E. M. Hunn, H. Victor Paine, W. P. Cross, W. W. Swatman, and Capt. H. C. Biard (vice-presidents of the Club), Mrs. M. J. Jarvis, Mr. and Mrs. R. C. Tanner, Miss Tanner, Miss Munday, Miss Courtney, Miss M. E. Bruce, Mr. W. P. Rocke, Major H. Shaw, Capt. S. G. Wybrow, and Mr. and Mrs. R. Kemp.—L. B.

THE HAWKER COMPANY ENTERTAINS.

On Wednesday, Jan. 12, the H. G. Hawker Engineering Co. Ltd. gave a dinner and dance, complete with Cabaret show, at Nuthall's Restaurant, Kingston-on-Thames. It has always been an article of faith of Mr. Sopwith and Mr. Sigrist that if a thing is worth doing it is worth doing well. This policy has been uppermost in all their works. It is to be seen plainly in all their aircraft and it appears when they enter for competitions.

Among those present were: Mr. T. O. M. and Hon. Mrs. Sopwith, Mr. and Mrs. F. Sigrist, Mr. F. I. Bennett, Mr. and Mrs. F. S. Spriggs, Mr. and Mrs. C. R. Fairey, Mr. and Mrs. Burroughes, Mr. and Mrs. Muller, Mr. I. Lord, Mr. F. N. St. Barbe, Mr. and Mrs. G. Dorman, Flt. Lt. and Mrs. P. W. S. Bulman, Mr. and Mrs. W. H. Mace, Mr. and Mrs. Camm, Mr. and Mrs. H. K. Jones.

Therefore, remembering the "Uncle Fred" Sigrist's famous party at Lympne last September, one prepared for a thoroughly good evening.

After an excellent dinner came the speeches, which one will report verbatim. Mr. Sopwith said, "On these occasions we never have speeches," and sat down amid tremendous cheers. Mr.

Muller, on behalf of the guests, said, "As there are to be no speeches I will not make one," and sat down with more applause.

The party then adjourned to the ballroom where they were augmented by the whole of the Hawker Company and their friends.

At 11 p.m. was staged the "Latest Hawker Production," entitled "The World's Worst Cabaret" in five "cameos," which included the "Legoleo Girls," Gloria Cygnet, the £3,000 Hawker Soprano, "Messrs. Fynn and Ruddah, the Emppennage Comedians," and a funny Froth Blower Act.

The *pièce de resistance* was a one-act bull-fight ballet entitled *Bulmania*, which, as the programme stated, was being presented for the first, and obviously the last, time.

The whole Cabaret went with a swing and snap which would have done credit to professionals. The whole five scenes only lasted 13 minutes, and everyone, from the page who operated the item-easel to the star performers, entered thoroughly into the spirit of the thing and enjoyed themselves as much as the audience. This is the secret of success in such a show.

Mr. F. S. Spriggs, Secretary of the Company, was responsible for the inception and general organisation of the whole function, and Messrs. Sherras and McCoy carried out the detail work of the Cabaret.

The costumes were all made at the Hawker Works out of hours.

The whole evening was a great success and it seems a pity that we shall have to wait a whole year until the next one.

G. D.

AN ARTISTIC SWISS PRODUCT.

The *Acro Revue*, the only Swiss aviation paper, has published a most decorative as well as useful appointment calendar for 1927. On each page of this calendar the upper half is devoted to an excellent photograph of aeronautical interest, of a new type of machine or engine, a view taken at a recent aviation meeting, or an aerial picture.

This very useful office implement can be obtained at a price of Francs 4.50 (post free) from A.-G. *Aero Revue*, Zurich.

"WHO CAN TELL?"

A letter to a builder of aero-engines, published in *The Wright Engine Builder*, the house-organ of the Wright Aeronautical Corporation, of New Jersey:—

Dear Sirs:—About the engine, well,
We write to let you know
We've waded through the booklet on
"What makes the engine go"—
It took us close to half a day
To read through all the guff.
The engine goes all right, but don't
Keep goin' long enough.
It's very good to understand
What makes the engine go:
But why the deuce the damn thing stops
Is what we want to know?

So now we're making this request,
While tears and curses drop,
Please send along a booklet on
What makes the engine stop.
The folks around here all await
With interest your reply;
To them the reasons why she goes
Don't seem to signify.
So while we wait and chew the cud
Don't let the matter flog;
For Gawd's sake write and let us know
What makes the blighter stop.



THE HAWKER CABARET which was conceived and performed by members of the Hawker staff.

Recent Long-distance Flights on WAKEFIELD CASTROL

IN the flight of Sir Samuel and Lady Maud Hoare to Delhi in Thirteen days, despite violent storms in Iraq, Wakefield CASTROL was used to lubricate the "Jupiter" engines of the Hercules aeroplane. This famous lubricant will be used in all the air-liners on the new Cairo-Karachi Line.

CAPT. T. N. Stack and Mr. B. S. Leete, of the Lancashire Aero Club, who have been touring in their "Cirrus" engined "Moths," arrived at Karachi on Jan. 8th, having accomplished what is undoubtedly a record performance for light planes. They also used Wakefield CASTROL throughout.

Whenever maximum efficiency and absolute reliability are essential, then the lubricant chosen is—

There is a Castrol Grade for every aircraft engine. If you are an aircraft user let us quote you.



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 13; Tuesday, 11; Wednesday, 12; Thursday, 10; Friday, 9; Saturday, 12; Sunday, 0.

IMPERIAL AIRWAYS LTD.:

London—Paris; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam; Cairo—Karachi: Machines 26, passengers 127, freight 10 tons.

AIR UNION:

Paris—London: Machines 14, passengers 21, freight 12½ tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 13, passengers 20, freight 1½ tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 13, passengers 8.

PRIVATE:

Machines 1, passengers 1.

Total number of trips by British Machines, 27, carrying 128 passengers. Foreign Machines, 40, carrying 49 passengers.

Comparative Figures:

Week ending Jan. 16:

Machines, 67; Passengers, 176; Crews, 108; Total personnel, 284.

Corresponding week, 1926:

Machines, 44; Passengers, 125; Crews, 54; Total personnel, 179.

Corresponding week, 1925:

Machines, 16; Passengers, 17; Crews, 16; Total personnel, 33.

Corresponding week, 1924:

Machines, 45; Passengers, 66; Crews, 70; Total personnel, 136.

Corresponding week, 1923:

Machines, 36; Passengers, 79; Crews, 63; Total personnel, 142.

Corresponding week, 1922:

Machines, 14; Passengers, 14; Crews, 21; Total personnel, 35.

Corresponding week, 1921:

Machines, 15; Passengers, 12; Crews, 17; Total personnel, 29.

Croydon Notes.

Croydon has been more than usually devoid of noteworthy incident this week. This is a good sign, as most of the incidents worth recording are deviations from the normal course of things. Occasionally there is to report a more than usually good performance. This is always a pleasant task. But if a week passes without having to record a forced landing or a drowned Pomeranian dog then everything is running with regularity and so there has been a week of satisfactory work done with nothing out of the ordinary to record. Such a week was last week. And the buildings across the other side of the aerodrome continue to progress slowly and we heroes and heroines are beginning to recover from having got up early on Boxing Day.

The Handley Page Hampstead, with three Bristol Jupiter engines, continues to do good work. When the machine returned from Cologne on Jan. 13 the engines had each completed 104 hours' running without having been touched in any way and no replacements having been made and no spare parts whatever having been used. Such consistency in three engines makes one think that a real commercial engine exists in the Jupiter, Mr. Roy Fedden, the designer, certainly deserves the greatest credit for this, as also does Mr. Frank Barnwell, who designed the mountings. And there is more than many people would think in the design of such an apparently simple thing as an engine mounting.

So far there is no news of any new machines for Imperial Airways for the Continental services this season. There are two Argosies and presumably they will have the third, which is in the possession of the Air Ministry. There are three Handley Page W.108 (Napier) and three W.8s (Rolls-Royce) of 1922 vintage. There is also the Hampstead (three Bristol Jupiters), and the Hamilton (two Siddeley Pumas and one Rolls-Royce). These have a total seating capacity of 152 (or 172 with the extra Argosy). Whether these ten or eleven machines will be sufficient to deal with the summer traffic or whether new machines will be sought remains to be seen.—G. D.

THE CAIRO—BASRA SERVICE.

The fortnightly service of Imperial Airways between Cairo and Basra is now in operation.

The first westbound machine left Basra on Jan. 7 with a load of freight. At Baghdad three passengers for Cairo, one for Gaza and one for Rutba Wells were emplaned and 140 lbs. of mail. That it duly arrived at its destination is proved

by the fact that a quantity of letters and papers despatched by this means from Basra and Baghdad have been received by THE AEROPLANE.

The second eastbound machine left Cairo for Basra with four passengers and mails. This machine is still on its way at the time of writing.

COMMERCIAL AIR TRANSPORT.

[“Commercial Air Transport.” By Lt.-Col. Ivo Edwards, C.M.G., and F. Tymms, M.C. With a foreword by Air Vice-Marshal Sir Sefton Branker, K.C.B., A.F.C. London, Sir Isaac Pitman and Sons Ltd. 7s. 6d. net.]

In this volume of Pitman's Transport Library, Col. Edwards and Capt. Tymms give an outline of the present condition of Commercial Air Transport. Both the authors are well-known members of the staff of the Directorate of Civil Aviation, the Air Ministry, and are necessarily in very close touch with all Civil air transport operations in the United Kingdom.

The book is therefore undoubtedly well informed—in fact one cannot help feeling that it is unfortunate that the authors are precluded both by the limited dimensions of the book itself, and by their official positions from disclosing a little more of the information that must almost certainly be in their possession.

This applies more particularly to that section of the book which deals with the economics of air transport, but obviously under the present conditions it is idle to expect anything like detailed statements as to the actual costs of operating air services in practice.

The book opens with a very brief history of human flight from the earliest days up to and including the present time. It then proceeds to discuss the subject of State subsidy for commercial air lines, and outlines the case in favour of the existing British practice on the only reasonably sound ground that has yet been advanced. This briefly is that the existing services are to be regarded only as large-scale experimental work which cannot be expected to operate on a purely commercial basis, but which may with the aid of State subvention lead to cheaper and more rapid development of real commercial operation than can be attained by any other means.

This is followed by a chapter on State v. private operation wherein the arguments against direct State operation are very fairly stated. It is curious that Government officials will often admit the incapacity of a Government department to trade efficiently without recognising that the essential evil lies not in State ownership but in official control.

Chapter IV under the heading of Legislation outlines the present state of international agreement and national legislation which controls the operation of civil aircraft in this country and in others which have accepted the International Convention for Aerial Navigation.

The following three chapters deal with the general economic principles affecting the operations of air lines. As has already been hinted these chapters do not give very much quantitative information, but they are clear and sound expositions of principle. The one point on which one would quarrel with the authors is in the matter of the incidence of obsolescence. One has very little doubt that in this matter they have been misled by interested parties who ought—but possibly do not—know better.

Plant becomes obsolete only when interest on the capital necessary to replace it can be paid for out of the savings—or increased earnings—of the new plant. And to charge obsolescence against running expenses is to handicap a new industry unfairly at its beginnings. Plant may be worn out before it becomes obsolete—but this is a matter for depreciation and not obsolescence.

The remainder of the book deals very clearly with practical physical difficulties encountered in operation. This section deals with the lay-out of aerodromes, meteorology, and wireless services, traffic control, navigation, night and fog flying, and with the actual organisation now in use or under development for dealing with these points. The authors subscribe to the dictum that the success of an air service depends primarily upon its ground organisation, but they also insist that this is a state of affairs which may be expected to alter in the future. The major part of ground organisation is devoted to guarding against the risk that an aero-

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plane having started on a given journey may fail to complete it.

Once the aeroplane itself and the methods of navigating it are sufficiently perfect this risk disappears, and with it much of difficulties of ground organisation.

Taken as a whole the work may be thoroughly recommended as a general survey of a subject concerning which knowledge at present is in a somewhat elementary state.

PRIVATE FLYING RESTRICTIONS IN 1560.

The Strasbourg correspondent of *The Daily Mail*, in a message dated Jan. 13, states:—

Documents have been found in the Kremlin, according to an investigator who has just returned from Moscow to Strasbourg, showing that in 1560 a Russian named Nikichka made a gliding flight from the top of the tower of the Alexandrovskaia Sloboda Cathedral in the presence of Czar Ivan the Terrible and landed safely on the cathedral square.

Nikichka had fitted a pair of wings to his shoulders and held a parachute which brought him gently to the ground.

The crowd, which included an English Mission, hailed the feat as a miracle, but the Czar fell into a violent temper and, ordering the inventor to be brought before him, said: "This man is a sorcerer and his invention is an invention of the devil. Man is not a bird and wings are forbidden him." He immediately gave orders for the bird-man to be decapitated, and the head of the unfortunate Nikichka was struck off.

PETROL.

The following letter has been received:—

Sir,—In the current issue of *THE AEROPLANE* you refer on page 46 to the fuel used by Messrs. Stack and Leete in their flight from London to Karachi. As the inference to be drawn from the paragraph is rather contrary to the facts, we would ask that you would correct any such impression in a later issue.

The circumstances under which this flight was arranged were such as to prevent any elaborate arrangements for supply of fuel. Messrs. Stack and Leete used "B.P. Aviation" Spirit from the point of their departure to Malta, and again through the whole of their later stages through Persia to Karachi.

We received advices from them of their progress from time to time, and their last message from Karachi reads as follows:—

"Your supplies Persian Gulf and East entirely satisfactory. Congratulations on a perfect Aviation Spirit."—LEETE.

Yours faithfully,

For British Petroleum Company Limited,
(Signed) C. W. WIMBURY,
Divisional Sales Manager.

This letter seems to confirm what was stated last week with the additional news that B.P. has been used from London to Malta and in the later stages of the flight from Palestine to Karachi. Shell was used for the 200-mile flight from Malta to Khoms over the Mediterranean and also along the North Coast of Africa.

THE CIRrus ENGINE.

A.D.C. Aircraft Ltd. have received the following telegram from Messrs. Stack and Leete, who have flown on D.H. Moths (Cirrus Mk. II) from London to Karachi:—

Congratulate you. Cirrus wonderful all through.—STACK and LEETE.

And judging by their performance and the performance of all the other Cirrus engines they would seem to be perfectly correct in their sentiments. Cirrus engines have now flown over one million miles and the type has now established for itself the reputation of being "the" light aeroplane engine.

NEW COMPANIES.

ADR. TAXIS LTD.—Private company. Registered Dec. 31. Capital, £5,000 in £1 shares. To carry on business as letters out on hire of flying machines, to carry passengers and goods by air, to establish, maintain and work lines of and manufacture and deal in aerial conveyances, to provide and maintain hangars, to act as aerial and general engineers, etc. The life directors are:—G. B. H. Mundy, 68, Park Street, W.1, Lieut. R.A. (T.). W. L. Hope, "Konblech," Kingsbury, N.W.9, aviator (governing director). Solicitor: H. E. Crane, Northwood. Registered office: Stag Lane Aerodrome, Edgware.

PERSONAL NOTICES.

DEATH.

HULEATT-JAMES.—On Jan. 14, at Singapore Hospital, of cerebral malaria, Herbert (Mark), late The Manchester Regiment and R.F.C., only son of Lt.-Col. H. L. James, C.B., of 28, Linden Road, Bedford, and dearly-beloved husband of Anita Huleatt-James, "Nithsdale Estate," Kuala Mersing, Johore, aged 30.

MARRIAGE.

PEARSON—TESTER.—On Jan. 22, at Shanghai Cathedral, Harold Aubrey Pearson, M.C., D.F.C., son of the Rev. and Mrs. E. Omar Pearson, Guernsey, to Irene, daughter of Mrs. Tester, St. Leonards.

FORTHCOMING MARRIAGE.

FARRINGTON—NEVILLE.—The engagement is announced between Sq. Ldr. Wyndham Brookes Farrington, D.S.O., R.A.F., only son of Mr. and Mrs. F. W. Farrington, of Widcombe, Sevenoaks, and Violet Muriel Neville, youngest daughter of the Rev. Brent R. Neville, M.A., and Mrs. Neville, of Holbrook Rectory, Suffolk.

BIRTHS.

ADDIS.—On Jan. 3, at Landford, Wilts, to Kathleen, wife of Edward Addis, R.A.F.—a daughter.

WILSON.—On Jan. 14, at 28, Newark Street, Greenock, the wife of Flt. Lt. G. E. Wilson, R.A.F.—a daughter.

The SUPERMARINE "SOUTHAMPTON" TWIN-ENGINE FLYING BOAT (Two Napier-Lion Engines.)



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SOUTHAMPTON.
ENGLAND

Dear Sirs, Flight of "Southampton" Flying Boats to SOF and back

Messrs. Cellon (Richmond) Ltd.,
Petersham Road,
Richmond, SURREY.

23rd Sept. 1926.

Since the return of the two "Southampton" type machines which recently carried out a very successful flight to SOF and back, we have had an opportunity of examining the condition of these machines after their strenuous service in very varying atmospheric conditions.

We feel sure you will be both interested and pleased to know that the condition of the fabric on both machines is in first-class order, the original toughness being still retained, which is a proof of the excellence of your dope as these machines were never placed under cover from the time they left England until they returned and at all stopping places were stored out in the open under constantly varying conditions.

We enclose herewith a copy of the official report of this flight, and the results are a still further testimony to the excellence of the dope with which you supply us and which we use on all our machines.

Yours faithfully,
For and on behalf of
THE SUPERMARINE AVIATION WORKS LTD.
James Bird
Managing Director.

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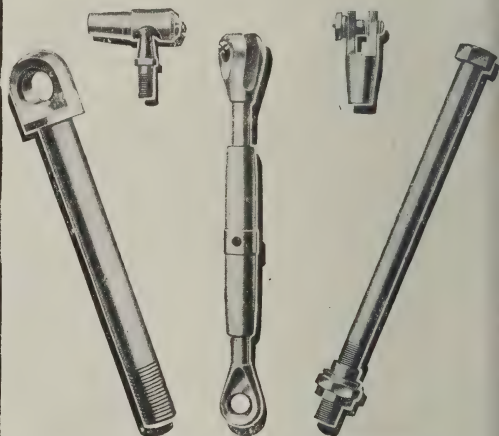
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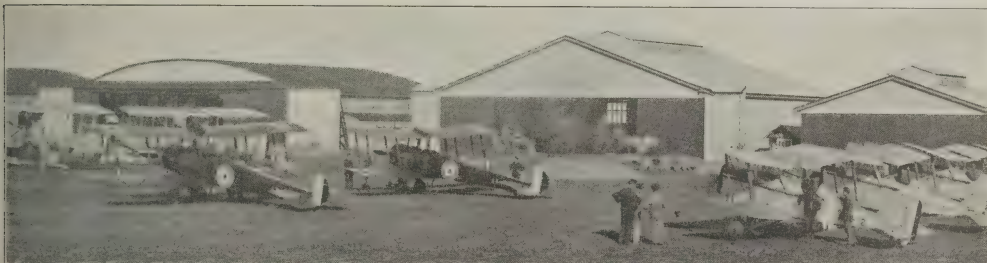
Edited by C. C. Grey

Vol. XXXII. No. 4.

SIXPENCE WEEKLY.

Registered at the G.P.O.
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"WE THAT WERE BRED OVERSEAS WAIT AND WOULD SPEAK
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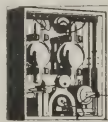


THE ROYAL AUSTRALIAN AIR FORCE AT HOME:—Some of the sheds at Point Cook, H.Q. R.A.A.F., with samples of equipment. On the left a couple of Supermarine Seagulls, Mk. III (Napier Lion engines), a batch of 504K Avros in the middle, and sundry S.E.5as on the right. In the middle back-ground an active tar-boiler seems to indicate the development of the tarmac habit in the R.A.A.F.

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The AVRO "GOSPORT"

"Flight" Photo.

THE AVRO "GOSPORT" dual control training aeroplane is expressly designed for military training purposes. It embodies all the principal flying characteristics of the high-powered scout, using an economical power unit of only 100 h.p. This is made possible by the extreme lightness of the machine, while its exceptionally robust construction allows it to perform every aerobatic manoeuvre known to the scout type. It can be flown equally well and landed with equal facility from either cockpit.

A pupil properly instructed on this machine by the "Gosport" method of instruction is able to pilot safely all types of aeroplanes, including war machines, without the necessity for instruction on an intermediate type of advanced training machine.

The engine is the new Monosoupape, 100 h.p., with "Y" metal pistons. The light weight of this engine and its low weight per horse power allow the design of a light and strong machine as in the case of the "GOSPORT" with the corresponding advantages to performance and manoeuvrability. Another point is that its simplicity ensures ease of maintenance.

The rotary or radial types of engine alone permit the close approximation of the centres of gravity and pressure, so essential for the ease of manoeuvre required in an efficient training machine.

The Avro "GOSPORT," therefore, with this engine is strong yet light, low-powered yet with an exceptionally good performance, and possesses all those flying characteristics to which a pupil must become accustomed before he can safely fly any war machine.

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Abroad, 3 months, 8s. 9d.; 6 months, 17s. 6d.; 12 months, 35s.
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ON PROBLEMS FOR 1927.—II.

PUBLIC INTEREST IN FLYING.

Having considered the problems of the Air Force for 1927 we may now have a look at some of the problems of Civil aviation. The growth of public interest in flying, as such, and quite distinct from all questions of home or imperial defence, is evident. In this office one has particularly good opportunities of feeling how opinions are running.

For the past twelve months the circulation of THE AEROPLANE has been growing with unpleasant rapidity. It is now some 30% bigger than it was a year ago, and as there has been no improvement or alteration in the paper itself to account for its sudden growth in popularity, the increase must be due solely to pressure in public interest in flying. Naturally anybody outside the newspaper trade would think that the bigger the circulation the better for the paper. That would certainly be so if the selling price of the paper covered the cost of producing each copy. But it does not. Though the consumer pays his or her sixpence a copy, by the time the trade discounts are knocked off the actual net price is rather lower than the cost of producing each copy.

That must be so unless the management were content to sue a little paper of about twenty pages. But such a paper could not be able to fulfil its function as the recognised source of information and influence on Service, civil and technical subjects all at once. Consequently we have to produce a bigger paper, and such a paper is only able to live because of its revenue from advertisements.

The price which advertisers will pay is naturally limited by the amount of good that they get out of their advertisements. Therefore with the growing popularity of aviation we are just now at the awkward point where there is a growing demand for the paper although there is not a corresponding growth in orders for aeroplanes. So there cannot be a growth in the prices which we can charge for advertisements, and that prevents the growth in the size of THE AEROPLANE

which there ought to be in order to handle all phases of aviation as fully as one wishes to do.

When the present stage of intelligent interest grows still further and develops into a definite demand for aeroplanes from private owners and co-operative flying clubs and taxi-services and so forth, then the Trade will be able to afford a higher price for its advertisements and we shall be able to give our readers a larger and better paper for their money.

THE BOOKSTALL PROBLEM.

Also when that happy time comes we shall be able to let the newsagents and bookstall people have a certain number of copies "on sale or return," as is the custom of most newspapers, instead of, as at present, being compelled to limit our output to copies which are actually ordered. And then we shall not have complaints about the un-get-ability of the paper from would-be purchasers of THE AEROPLANE, who expect to find copies of the paper on every bookstall in the country.

One need only point out that if every bookstall and every newsagent in the country had only one copy of THE AEROPLANE that alone would absorb something like ten thousand copies a week. In the meantime we are just in the same unfortunate position as are most aircraft firms, that is, with an output which is not big enough for mass production and too big for manual labour.

CORRESPONDENCE.

Nevertheless, in spite of these limitations, the amount of correspondence which comes into this office day by day has not only increased vastly in quantity but has taken on a new quality. Up to about a year or eighteen months ago, correspondence was chiefly with people in aircraft businesses in this country or abroad, with friends in the Air Force or with people leaving the Air Force and looking for jobs in the Trade. That is to say, it was almost entirely with people already interested in aircraft. Of late all kinds of new factors have come into the correspondence. People of all



A PROGRESSIVE STEP.—The Avro Aldershot with the Beardmore Typhoon engine,—an inverted six-cylinder, giving between 800 and 900 h.p.

ages and social grades keep on writing and asking for information and advice. Some want to know how to join Flying Clubs, some want to know about air transport, some want to know about buying aeroplanes, some want to know how to learn to fly, some want to know what are the best books from which to learn about aeronautical affairs generally.

There is more and more correspondence with newspapers at home and abroad asking for accurate information about aircraft or individual aviators, there is more and more telephoning by London papers and by representatives in London of provincial papers and foreign papers asking for similar information or wanting to know where they can get hold of people concerned with aircraft.

They all seem to think that THE AEROPLANE office is a mine of information and a kind of general inquiry bureau. Naturally we on the staff of THE AEROPLANE do our best to live up to the opinion which all these kind people seem to have formed about us, conscious as we are of our own very distinct limitations. It all involves a lot of hard work, but it is all for the good of Aviation in the first place and ultimately it must be for the good of THE AEROPLANE newspaper and consequently in the end our own individual profit.

THE COMING BOOM.

The point about all this is that although there is no boom in aviation at the moment, there are all the symptoms of a boom coming along. One has been right through three trades practically from their very start, the cycle trade, the motor trade and the aircraft trade, and one has seen all their successive booms and slumps.

The present state of Aviation, that is to say Civil Aviation, is almost exactly that of the cycle trade in about the year 1894, or of the motor trade in about 1903. In each case the general public were quite keenly interested in the new method of transport, but many people said the vehicles were too dangerous ever to become popular, and most people could not afford the prices at which they were then sold.

A certain number of enthusiasts denied themselves luxuries, and even necessities, to buy the vehicles. A very large number of elderly people, not necessarily old in years but old fashioned in outlook, held forth against the dangers, social, moral and physical, of these new methods of rapid transport. And in the end, always after exactly the same changing phases in the mental attitude of the people, the boom came, a number of people made fortunes, and then came a slump in which most of the people who had made the fortunes lost them. But always the public use of the new vehicles increased—and increased steadily.

Now one does not say that the boom in Civil Aviation is coming in 1927 or even in 1928. But it is coming within the next few years, just as surely as the various booms in other commodities have come along. And, one may remark incidentally, that there is no reason why a boom in Civil

Aviation should not run concurrently, at any rate for several years, with the earlier phases of the next war, in which we may not at first be directly concerned. Therefore the great problems for 1927 before all of us who are interested in Civil Aviation are how to hurry the boom a bit, how best to prepare for it, and how to make the most of it when it does arrive.

HURRYING THE BOOM.

So far as hurrying the boom is concerned, certainly the most important step in that direction which has been taken so far is the announcement by the De Havilland Company in the first issue of THE AEROPLANE this year that they have cut the price of the Moth down £730—a big drop from its original price of £883, and a distinct sign of the times. It is quite true that there are not many private owners who can afford £750 for an aeroplane (allowing an odd £20 for accessories), but the drop does make a difference.

If one starts off with the idea that there is a certain number of sportsmen, young and middle-aged, in this country, who have £1,000 to spend on, if not actually to spare for, their pet hobby, the new price will certainly bring a portion of them in as private owners of aeroplanes.

If a man had just got that £1,000 he could not afford an aeroplane at nearly £900. That left him practically nothing with which to buy a car as a tender to the aeroplane, and every aeroplane owner must have a car as well in order to reach the aerodrome at which his machine is garaged. But at £750, or thereabouts, he certainly has £250 left with which to buy a car which is quite good enough for the job, such as a Morris-Cowley or an Essex.

When motor-cars cost somewhere in the direction of £1,000, as they did in or around 1903, we thought it was quite wonderful when somebody put on the market at about £700 a decent car with an open touring body and without lamps or any accessories. And if anybody had dared in those days to suggest that we should have a fully equipped saloon car with four-wheel brakes, spare wheel, self-starter and all kinds of gadgets on it for anywhere between £200 and £250 he would have been considered a lunatic. Yet we have those cars.

The problem therefore is how to get the £750 aeroplane down to £250 as quickly as possible. Nobody expects the price to come down to that extent within the next year or two. We must have genuine mass production before we can touch it. But one does believe that we can get down to £500 within the next twelve months and probably to £400 a year later.

[P.S.—This was written before the Avro announcement which appears on p. 88 was received. That announcement confirms one's statements.—C. G. G.]

GETTING THE PRICE DOWN.

One way of setting about it, one is sure, is for somebody to start in and build light aeroplanes right away from any ordinary factory, so that they will be absolutely free of overhead charges.

Another thing to do is to overhaul the design of both aeroplanes and engines with an eye solely on reducing the number



A FINE CITY.—Berlin photographed from an aeroplane of the Deutscher Aero Lloyd. The Column of Victory in remembrance of the defeat of France in 1870 is seen in the foreground, also the Königsplatz facing the Reichstag.

'There was no risk' / —with Napiers!

On his return from an extensive air tour in Iraq, Sir Samuel Hoare, Secretary of State for Air, said—

"I SPENT a good many hours of a good many days looking out of the window of the aeroplane, and what I saw was the word 'Napier' on the engine on each side.

"That gave me confidence. I felt there was no risk about it, and there *was* no risk about it."

The following flights were made with Napier engines during 1926, without any mechanical trouble or change of engine.

1. Cairo to Cape Town and back to England by 4 Royal Air Force Fairey machines.
2. Plymouth to Alexandria and back by 2 Royal Air Force Supermarine flying boats.
3. Cairo to Aden and back by 2 Royal Air Force Vickers troop carriers.
4. Spain to Buenos Aires by a Dornier Wal flying boat piloted by Major Franco.
5. First prize won by Heinkel-Napier in competition to discover best German commercial seaplane.
6. Two World's records for altitude with heavy loads secured by Heinkel-Napier seaplane.

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of different parts and making one piece of wood or metal do the work for which two or three or more are used at present.

Not very long ago a clever designer who had learned his job in the States was looking over a very successful British light aeroplane, and he pointed out at least a dozen places in which the number of different parts could have been reduced by a half.

Also there is room for somebody with a bright brain to devise an entirely different method of wing construction. A very large proportion of the present cost of aeroplanes is due to the intricate wing structure. Surely there should not be any more work in the wings of a light aeroplane than there is in the body of a motor-car. Yet one can buy the whole car for £200. And one doubts very much whether one could buy a set of wings for a light aeroplane at the price.

There ought to be some way of producing wings in which the outside does all the work without any skeleton inside, much on the lines of a lobster's claw. And all the bracing should be simple steel tube, as it was in Mr. Kenworthy's design for the Austin Whippet.

PATRIOTISM VERSUS PRACTICAL POLITICS.

If we in this country do not tackle these problems promptly and properly then they will be solved in some other country. Thus we shall find ourselves much in the position of the British motor-car trade, which, in spite of a boom last year, is likely to find itself in a very bad slump in the near future, thanks to the fact that Mr. Morris of Oxford has by sheer enterprise collared the whole of the market for low-priced cars, while the Americans, by virtue of combining ingenuity in their equipment with good solid wearing qualities, high speeds, and high power, have again absolutely beaten all the middle and high priced English cars, with the exception of the Rolls-Royce. If anyone doubts this statement let him put up any English car at any price which will compare with the Packard, the new Chrysler and the Essex for performance and value.

The other day a bright young person, looking at a number of automobiles in a car park, remarked contemptuously, "I think people are very noble who buy English cars." Which sums up the whole situation in the fewest possible words.

Patriotism is all very well, but it is very silly to sacrifice personal comfort or safety to patriotism merely in order to bolster up our own stupid shop-keepers. All our history tells us that they can never be made to progress unless forced to do so in self-defence. And all our best-paying trades have been developed for us by imported foreigners.

One hopes sincerely that the time will never come when people will be considered noble for buying British aeroplanes. But unless our aircraft manufacturers prove themselves to have mental ability very much superior to that of our motor-car manufacturers, we shall find ourselves, when the boom in civil aircraft arrives, buying American and German and possibly French aeroplanes, just as we bought American and German and French motor-cars in the past, and as we are buying all sorts of foreign cars to-day because they are better value than English cars at the same price.

And let it not be forgotten that Sir Alan Cobham and Lt.-Col. Warwick Wright are in the United States with the openly avowed intention of discovering American aircraft which are worth importing to this country. If they do succeed in making money in that way they will deserve all they get for their enterprise. And if our manufacturers lose the money it will be their own fault.

RESTRAINT OF TRADE.

To-day the De Havilland Moth is by far the best all-round civil aeroplane in the World which has made a market for itself. One makes no comparison between it and such machines as the Blackburn Bluebird and the Avro Avian and the Westland Widgeon, because the latter have not yet made markets for themselves. The only other machines which have a market of any sort are built abroad.

At the present moment those foreign machines cannot be used in England because of our airworthiness regulations. At the moment those regulations afford absolute protection to the British Aircraft Industry in a way which is contrary to all the principles of political economy and is far more effective than any tariff wall. But when the boom in aircraft arrives pressure of public opinion will insist on free trade without restraint.

Already strong influence is being brought to bear by important people concerned with aircraft to have these regulations abolished. At various Aero Club Dinners quite sound arguments have been put forward proving that if all the regulations governing Civil Aviation were abolished we should make better progress. And one has been forced to believe that such is the fact.

Hitherto one has always held that our requirements for airworthiness certificates, for aeroplanes, engines and pilots were fully justified, because they would build up for this country the reputation of having the best machines and the best men

in the World. But one is being forced into the belief that all regulations ought to be abolished so far as private flying is concerned.

The individual would-be aviator ought to be just as free to go and break his own silly neck as is the ordinary motorist. 'Bus drivers and drivers of public service vehicles have to pass tests of road-worthiness, but any imbecile motor-owner can do as he likes, subject only to the Common Law. And the private aviator ought to have similar freedom.

If all regulation of private flying were removed, a few people might fall and hurt themselves, or somebody else, but we should at any rate then be free to import foreign aeroplanes and foreign engines for sale to private owners. The law of supply and demand would operate as it always does.

If the engines and aeroplanes proved to be bad then they would kill their own market. If they proved to be good and could be bought cheaper than British products, then the British manufacturer would either have to improve his methods of production, or prove that his machine was worth the extra money, or go out of business. Any of the three alternatives would be better than keeping the price of English machines up in the air by such artificial means as prohibiting the import of foreign aeroplanes under the airworthiness regulations.

The Warwick Wright-Cobham combination, about which something has already been said, seems to indicate the beginning of a new movement in the direction of importing cheap aeroplanes for the private owner. One only hopes that this venture will have some effect in the way of abolishing the particularly unhealthy form of protection against foreign aircraft which at present exists.

THE SPUR TO SUCCESS.

There one has indicated some of the problems of Civil Aviation for 1927. And one hopes that the suggestions which one has made will help to solve those problems.

Protection is a splendid thing in its way, as has been shown in America, provided that the industry which is being protected has sufficient energy and initiative and brain-power to progress without the spur of foreign competition. But apparently England is a Free Trade country very largely because our national genius for doing the right thing in spite of ourselves has taught us instinctively that the Englishman only does his best work under the spur of ruthless competition.

Give the English shop-keeper, which is the same thing as the English manufacturer, the least protection in business and his mind immediately becomes lazy, and he is content to muddle along in his usual way. But spur him by competition, and he immediately shows that when once he is wide awake he is not only the best manufacturer but the best designer and the best salesman in the World.—C. G. G.

MORE PRICE REDUCTIONS IN LIGHT AEROPLANES.

A. V. Roe and Co. Ltd. notify the fact that they are now producing the Avian two-seater light aeroplane at their Manchester Works, and that the following prices have been fixed:—

When fitted with Cirrus Mk.II engine, £675.

When fitted with Armstrong-Siddeley Genet engine, £750.

The machines are sold fully equipped with everything a pilot is likely to require, even for long journeys.

Service arrangements have been completed, and it will be possible for owners to obtain spare parts, if and when required, from either The Hamble or Manchester Works.

Pilots flying the Avian may land at either the Hamble or Woodford aerodromes of the Avro Company free of charge and no charge will be made for housing their machines at either place for the night.

Here we have a decided step forward in the owner-pilot movement. A machine sold at a price which includes "service"—as understood and invented in America—will naturally fetch more money than one which does not. So this reduction in price, plus "service," ought to mean real business for the enterprising Avro firm.

Nevertheless we must not lose sight of the ultimate aim, the aeroplane at £400 or less, with an engine of 100 h.p., at 100 lbs., for £100.

MEDALS FOR AERONAUTICAL ENGINEERS.

It is announced that the Council of the Institution of Aeronautical Engineers has unanimously decided to award the Sir Chas. Wakefield Medal to Mr. M. L. Bramson for the invention of the Savage-Bramson Anti-Stall Gear and the Council's Silver Medal to Flt. Lt. G. H. Reid, D.F.C., for the invention of the Reid Control Indicator and the Reid Reaction Time-Testing machine.

The Wakefield Medal it will be remembered has been given by Sir Chas. Wakefield for presentation each year to the inventor of the most useful device making for the safety of air transport.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE ROYAL AIR FORCE.

The London Gazette.

Jan. 18.

GENERAL DUTIES BRANCH.—Flt. Cadet W. J. H. Lindley having successfully passed through the R.A.F. Cadet College, Cranwell, is granted a perm. comm. as a Plt. Off. on probation, with effect from and with seniority of, Dec. 11, 1926; Sub-Lt. J. E. Burstall, R.N., is granted a temp. comm. as a Flt. Off. on attachment for four years' duty with the R.A.F. (Jan. 4).

The following Plt. Offs. are promoted to the rank of Flt. Off.:—H. A. Evans-Evans (Sept. 7, 1926); A. H. Willetts (Nov. 16, 1926); G. J. C. Mahony (Nov. 30, 1926); C. Heard-White (Dec. 14, 1926). Plt. Off. on probation R. A. Barnett is confirmed in rank (Jan. 4).

Flt. Lt. A. J. G. Styran, M.C., A.F.C. (Lt., R.A., R.A.R.O.), is transferred to the Reserve, Class A (Jan. 13); Flt. Off. E. R. Newbiggin (Lt., T.A. Reserve, General List, R.A.S.C.) relinquishes his S.S. comm. on account of ill-health (Jan. 16); D. H. Tollemache, Lt. (E.), R.N., Flt. Off., R.A.F., relinquishes his temp. comm. on return to Naval duty (Jan. 11); Flt. Off. W. J. Eldridge, D.S.O., M.C. (Lt., R.A.), relinquishes his temp. comm. on return to Army duty (Jan. 12).

The following Plt. Offs. on probation resign their S.S. comms.:—K. R. Soward (Jan. 12); A. D. Vigors (Jan. 19).

ACCOUNTANT BRANCH.—The following Plt. Offs. on probation are confirmed in rank and are promoted to the rank of Flt. Off. (Dec. 7, 1926):—D. Sender, J. A. Stephenson.

MEDICAL BRANCH.—The following are granted S.S. comms. as Flt. Offs. for three years on the active list, with effect from and with seniority of, Jan. 4:—J. E. Foran, M.D.; M. O'Regan.

RESERVE OF AIR FORCE OFFICERS.—The following are confirmed in rank:—Flt. Off. on probation, S. Turner (Jan. 13). Plt. Offs. on probation:—J. R. W. Alexander (Jan. 13); J. H. A. Wells (Jan. 18); N. M. Browning (Jan. 19); H. A. Denny (Jan. 20).

Flt. Off. A. C. W. Richards is transferred from Class C to Class A (Nov. 16, 1926). The following Flt. Offs. are transferred from Class B to Class C:—A. W. Barron (Oct. 24, 1926); H. Alexander (Dec. 12, 1926). Flt. Off. G. S. Fenwick relinquishes his comm. on account of ill-health, and is permitted to retain his rank (Jan. 19).

Appointments.

Week ending Jan. 24.

GENERAL DUTIES BRANCH.—Wing Commanders R. E. C. Peirse, D.S.O., A.F.C., to R.A.F. Depot, Uxbridge, whilst attending course at Imperial Defence College, 8/1. S. W. Smith, O.B.E., to Air Ministry, Directorate of Organisation and Staff Duties, for Air Staff duties, 8/1. E. L. Tomkinson, D.S.O., A.F.C., to R.A.F. Depot, Uxbridge, Supernumerary, whilst attending course at Imperial Defence College, 17/1. S. Smith, D.S.O., A.F.C., to R.A.F. Depot, Egypt, for Administrative duties, 2/1. H. L. Reilly, D.S.O., to H.Q., Fighting Area, Uxbridge, for Air Staff duties, on transfer to Home Estab., 1/2.

Squadron Leaders G. C. Pirie, M.C., D.F.C., to R.A.F. Depot, Uxbridge, 13/12. A. Durston, A.F.C., to R.A.F. Depot, Uxbridge, 1/1. W. E. Reason, to No. 1 Stores Depot, Kidbrooke, 24/1.

Flight Lieutenants H. M. Brown, to No. 1 F.T.S., Netheravon, 17/1. S. M. Kinkead, D.S.O., D.F.C., to No. 5 F.T.S., Sealand, 25/1. J. G. Horne, to No. 19 Sqn., Duxford, 1/1. J. W. F. Merer, to R.A.F. Base, Calshot, 17/1. O. R. Gayford, D.F.C., to Helipolis Details, 19/12. C. E. Horrex, A.F.C., to No. 216 Sqn., Egypt, 19/12.

Flying Officers (Hon. Flt. Lt.) A. E. Forrest, to No. 20 Sqn., India, 16/12. J. B. Knocker, to Aircraft Depot, India, 16/12. V. Rees and E. S. Burns, to H.M.S. *Argus*, 19/1. G. W. Gay, to Electrical and Wireless School, Flowerdown, 24/1. E. S. Borthwick, to H.Q., Fighting Area, Uxbridge, 15/1. E. R. Hockaday, to No. 2 Stores (Ammunition) Depot, Altrincham, 3/1. H. A. Anson, to No. 56 Sqn., Biggin Hill, 19/1. E. A. Hodgson, to Experimental Section, R.A.E., S. Farnborough, 1/2. E. S. C. Vaughan, M.C., to R.A.F. Depot, Uxbridge, 15/1. (Hon. Flt. Lt.) A. W. Bates, to No. 4 F.T.S., Egypt, 15/1. C. S. Philpott, to No. 2 F.T.S., Digby, on appointment to a Temp. Comm. on being seconded from the Army, 15/1. H. T. R. Cripps, to C.F.S., Wittering, on transfer to Home Estab., 18/1. G. J. Southam, to R.A.F. Depot, Egypt, 25/12.

Pilot Officers M. A. Cowan, to No. 2 F.T.S., Digby, on transfer to Home Estab., 17/1. A. R. S. Davies, R. F. Gandy, L. K. Honeyball, I. B. Knapp, A. McKee, J. H. L. Maund, P. C. Miller, H. F. Suren, F. J. Taylor, C. K. Turner and J. W. Wood, to No. 4 F.T.S., Egypt,

15/1. E. G. Seanson, to No. 4 Sqn., S. Farnborough, 10/1. J. G. Foreman, G. Selk, L. C. L. Murray, E. H. Irving, F. Townsend, A. A. Koch and C. H. A. Colman, to R.A.F. Depot, Uxbridge, on appointment to S.S. Comms., 17/1. The undermentioned Plt. Offs. are posted to No. 2 F.T.S., Digby, on appointment to S.S. Comms. (on probation), with effect from 15/1: N. C. H. Barrett, K. C. Blatchford, J. D. F. Bruce, H. A. G. Comerford, W. G. H. Ewing, H. Francis, C. Pawley, C. E. N. Turton and E. J. P. Morris.

MEDICAL BRANCH.—Squadron Leaders A. F. Rook, M.R.C.P., D.P.H., to H.Q., Iraq, 17/12. F. E. Johnson, to Palestine General Hospital, 28/12. R. S. Overton, to Basrah Combined Hospital, Iraq, 30/12. H. S. C. Starkey, O.B.E., M.D., M.A., to R.A.F. British Hospital, Iraq, 1/1.

Flight Lieutenants C. P. Barber, to R.A.F. British Hospital, Iraq, 1/1. E. G. Howell, to Palestine General Hospital, 18/12. Flight Lieutenant (Dental) E. Alston, to H.Q., Halton, on appointment to a Temp. Comm., 8/1.

Flying Officers W. D. McKeown, M.B., to No. 208 Sqn., Egypt, 30/12. E. J. Jenkins, to No. 216 Sqn., Egypt, 30/12. Flying Officer (Dental) H. P. Sutcliffe, to R.A.F. Depot, Uxbridge, on appointment to a Temp. Comm., 6/1.

STORES BRANCH.—Wing Commander F. C. Williams, O.B.E., to H.Q., Iraq, for Stores Staff duties, 15/1.

Flight Lieutenants F. H. Sims, to H.Q., Iraq, 15/1. F. J. W. Humphreys, to H.Q., Inland Area, Stanmore, 20/1. R. Craig, to R.A.F. Depot, Egypt, 20/12.

Flying Officers W. T. Lewis, to H.Q., Egypt, 31/12. J. Davidson, to No. 70 Sqn., Iraq, 2/1. Pilot Officers E. J. Fishenden, to Stores Depot, Iraq, 15/1. E. G. M. Charleston, to No. 14 Sqn., Palestine, 30/12. L. Taylor, to No. 207 Sqn., Eastchurch, 21/1.

ACCOUNTANT BRANCH.—Flight Lieutenant J. S. Griffiths, to Stores Depot, Iraq, instead of to Brigade Accountant Office as previously notified, 7/12.

Flying Officers F. C. Chalmers, to No. 6 Sqn., Iraq, 30/12. H. A. Murton, to H.Q. Accountant Office, Iraq, instead of to Stores Depot as previously notified, 1/1. J. O. Morrison, to H.Q. Accountant Office, Iraq, instead of to No. 6 Sqn. as previously notified, 7/12.

Pilot Officers W. S. Calder, to R.A.F. Training Base, Leuchars, 18/1. R. S. Sweet, to R.A.F. Base, Gosport, 18/1. H. D. Connor, to No. 24 Sqn., Kenley, 18/1. H. C. Bakes, to No. 5 F.T.S., Sealand, 18/1. J. E. Gregson, to No. 6 Sqn., Manston, 18/1. B. Chadwell, to R.A.F. Depot, Uxbridge, 18/1. D. A. K. Yind, to No. 1 F.T.S., Netheravon, 18/1. J. H. Glenn, to R.A.F. Station, Duxford, 18/1. C. M. Johnson, to No. 1 School of T.T. (Apprentices), Halton, 18/1.

Fatal Accidents.

The Air Ministry regrets to announce that as the result of an accident at Malta to an Avro Bison of No. 423 Flight, on Jan. 18, Flt. Lt. Cyril Fraser Brewerton, D.S.C., R.A.F., the pilot of the aircraft, Edwin Chafe, Lt., R.N., Flt. Off., R.A.F., Lt. Guy Owen Owen-Jones, R.N., and J.39729 Ldg. Telegraphist George William Burton, R.N., were killed.

A Reuter message from Malta in *The Times* of Jan. 19 states:—

After leaving Halfar Aerodrome at 10.30 this morning the machine apparently attempted to make a forced landing, and in so doing struck the cliff and crashed into the sea, but the exact cause of the accident is unknown and is being investigated by a Court of Inquiry.

At the time of the accident weather conditions were of a most boisterous character. There was a heavy downpour of rain and hail and a very strong wind.

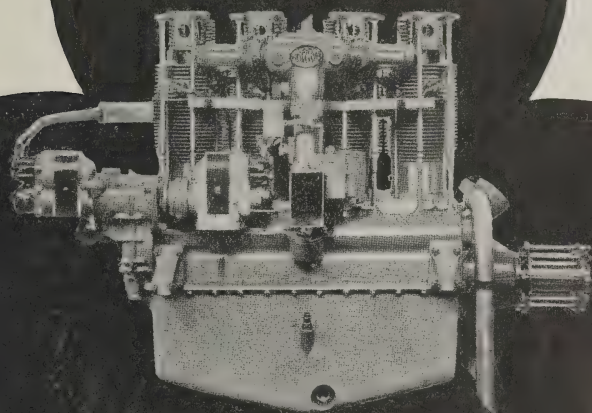
The Times correspondent in Malta, in a message dated Jan. 22, states that the following official statement was issued by the R.A.F.:—

The aeroplane had just taken off, and, still flying directly into the wind, approached the coast where the cliff is about 300 ft. high. Here the air was unusually disturbed by a gusty wind blowing seawards at about 50 miles an hour. The machine, at a height of 50 ft., was thrown out of control, the starboard lower wing struck the ground near the cliff edge, and the machine plunged into the sea. There is no indication of any defect in the aircraft or engine.

RUGBY FOOTBALL IN THE MIDDLE EAST.—No. 216 (Bombing) Squadron's team which won the Egyptian Command Rugby Cup. The final was played at Gezira, on Jan. 3, when No. 216 Squadron beat No. 208 (Army Co-operation) Squadron by 19 points to 7. Flt. Lt. J. I. T. Jones dropped a goal and scored a try, and Flt. Lt. A. D. Rogers and L.A.C. Palmer each scored a try for the winners. F.S. Fretwell converted all three tries. L.A.C. Blanden and L.A.C. Edwards scored for the runners-up. (Standing) L.A.C. Wood, L.A.C. Palmer, L.A.C. Steele, A.C.I. Morris, F.S. Fretwell, Flt. Off. H. Miller, L.A.C. Nunn, L.A.C. Pattison; (seated) Cpl. Brooks, Flt. Lt. J. I. T. Jones, Plt. Off. A. P. Wayne, Flt. Lt. A. D. Rogers, Flt. Lt. O. R. Gayford, L.A.C. Davies, and Flt. Off. G. M. Pitts-Tucker. F.S. Fretwell played Soccer for the R.A.F. in 1921-2-3-4-5-6. Flt. Lt. Jones played Rigger for the R.A.F. in 1920-22.



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The Premier at Northolt.

The Prime Minister, Mr. Stanley Baldwin, accompanied by the Chief of the Air Staff, Marshal of the Royal Air Force Sir Hugh Trenchard, G.C.B., D.S.O., and the Air Officer Commanding-in-Chief Air Defences of Great Britain, Air Marshal Sir John Salmond, K.C.B., C.M.G., C.V.O., D.S.O., A.D.C., visited No. 41 (Fighter) Squadron, R.A.F., at Northolt, on Jan. 24, and lunched with the Officer Commanding, Sq. Ldr. F. Sowrey, D.S.O., M.C., A.F.C., and the Officers of the Squadron.

During the afternoon the Prime Minister watched a demonstration of formation flying by the Squadron.

No. 41 (Fighter) Squadron is equipped with Siddleys Siskins. The establishment of the Squadron includes two airmen pilots.

The Secretary of State for Air.

The Secretary of State for Air, Sir Samuel Hoare, accompanied by Lord Winterton, Under-Secretary of State for India, arrived at Lahore aerodrome on Jan. 17, from Delhi.

The Secretary of State's machine was accompanied from Ambala to Lahore by a Squadron of D.H. gas in formation.

Sir Samuel Hoare, who is making a tour of the R.A.F. stations in Northern India, visited Kohat and the Kurram Valley on Jan. 19, and returned to Peshawar on the same day.

On Jan. 20 he visited Risalpur, the Headquarters of No. 2 Indian Wing and the Station of No. 5 (Army Co-operation) and No. 27 (Bombing) Squadrons, R.A.F.

On Jan. 22 an attempt was made to visit Quetta, the Headquarters of No. 3 Indian Wing and the Station of No. 28 (Army Co-operation) Squadron, but the flight was abandoned owing to bad weather.

R.A.F. for China.

THE AEROPLANE has been informed by the Air Ministry that the detachment of officers and men of the R.A.F. who are proceeding to China with the Royal Marines, are to supplement the R.A.F. Unit in H.M.S. *Hermes*.

The 29th Division Dinner.

The President and Members of the 29th Division Association would rejoice to welcome to their Annual Dinner on Apr. 25 any past and present officers of the R.A.F. who served in the Dardanelles.

The Dinner will take place at the Café Royal and tickets and full particulars may be obtained from the Secretary of the 29th Division Association, Lt.-Col. H. T. Wright, D.S.O., Heath House, Ewshott, Farnham, Surrey, not later than Apr. 11.

The Fleet Air Arm.

The Times of Jan. 19 states:—

Officers attached to the Royal Air Force for service in the Fleet Air Arm come under naval rules as regards leave when serving afloat under naval discipline, and under R.A.F. rules when serving ashore in units of the Fleet Air Arm under R.A.F. discipline. A new Fleet Order provides that their leave will be administered as follows:—(1) When serving under a definite posting to a Royal Air Force establishment, under R.A.F. rules; (2) when serving under an appointment to ship's books, under Royal Navy rules.

In the second category, it is provided that, if an officer during the period of his appointment to a home ship is transferred under A.F.O. 3365/25 to R.A.F. discipline, he will come under Royal Air Force leave rules during the period of such transfer. Such periods under R.A.F. discipline will not be included in the period of service in respect of which a balance of home service leave is allowed under Article 1556 of the King's Regulations, on finally vacating the appointment to the ship, and leave taken during such periods will not be included in the calculation of any such balance of leave. On the other hand, if the officer during the period of his appointment to ship's books abroad is transferred under A.F.O. 3365/25 to R.A.F. discipline, he will come under R.A.F. local leave rules during the period of such transfer, which period, however, will count for purposes of foreign service leave under Article 1556.

R.A.F. Cadetships and Awards.

The Air Ministry announces that Aircraft Apprentices F. C. Sturgiss (Salisbury), J. D. Rutherford (Higher Broughton), and W. R. Beaman (Catterick), from No. 1 School of Technical Training (Apprentices), Halton, and A. T. Shelley (Ayr), from the Electrical and Wireless School, Flowerdown, have been selected for cadetships at the R.A.F. Cadet College Cranwell, on the results of the examinations held on completion of their three-years' training as aircraft apprentices.

Sir Charles Wakefield Scholarships, valued at £75 each, have been awarded to Flt. Cadet J. G. W. Weston (Trent), on the result of the recent competitive examination for entry into the R.A.F. Cadet College, and to Flt. Cadet F. C. Sturgiss. The Hyde-Thomson Memorial Prize, valued at about £33, has been awarded to Flt. Cadet T. Shelley.

Aerodrome Obstructions.

Air Ministry Notice to Airmen No. 5, of 1927, conveys the following helpful warnings:—

MARTLESHAM HEATH: Visiting pilots should take great care when landing as heather is now being cut at this aerodrome. This work is expected to continue for at least six months.

MANSTON: The obstruction lights on the W/T masts at this station are temporarily out of action. Care should be taken when flying in the vicinity at night.

TANGMERE: Levelling operations have been completed. There are several furrows on the aerodrome that have been filled in with brown rubble and appear from the air to be ridges. They are, however, quite safe and aircraft may land on them.

R.A.F. SPORTS AND PASTIMES.

Upside-Down Flying.

The following information has been received from a correspondent in Egypt:—

Flg. Off. G. H. Stainforth, of No. 4 F.T.S., Abu Sueir, flew upside down for 11 minutes 42 seconds at Abu Sueir on Jan. 14, 1927. Mr. Stainforth's machine was an Avro 504K with a 100 h.p. Mono engine.

He climbed to a height of 10,400 ft., then inverted the machine, and came down to 800 ft. before resuming his normal position. The machine had been fitted with a special petrol lead from the filler cap of the main tank to a three-way cock.

It will be remembered that on Nov. 1, at Henlow, Flt. Lt. H. C. Calvey, R.A.F., flew a Sopwith Snipe (B.R.2 engine) upside-down for seven minutes and four seconds.

Rugby Football.

Royal Air Force v. Cambridge University.—The R.A.F. were beaten at Cambridge on Jan. 19 by Cambridge University by two goals and five tries to one goal and two tries.

Cambridge undoubtedly had the better team. In the first place they had combination and in the second place every individual player was fit. To lack combination in their first few games as a team is excusable in a Service representative side but to be as obviously unfit as certain members of the R.A.F. side were for this game is absolutely unforgivable. No players, not even 'Varsity men, have better opportunities for training than Service players and it is a disgraceful state of affairs that a man should turn out inadequately trained to represent his Service in any branch of Sport. It should not be necessary to impress upon those players from whom the R.A.F. team against the other Services will be chosen that it is their duty to make and keep themselves fit.

An experimental rearrangement of the side was made for this match, but it did not prove to be entirely successful. Sq. Ldr. Russell did not make an inspired full-back and was badly missed at scrum-half. His tackling was of that complete description which left no possible doubt in the mind of the tackled, or of the spectator, and he found touch with beautiful long kicks, but the nimble Cambridge three-quarters slipped past him like so many eels. Also as Captain he was too far away from the rest of the team to keep such a scratch side together.

Flg. Off. O'Malley made a very useful scrum-half, but he was hardly a match for Mr. Howell, the Cambridge scrum-half, aided and abetted by Mr. Windsor-Lewis, the Cambridge and Welsh stand-off-half. AC. D. Massey, who played his first game for the R.A.F. distinguished himself in every direction. He took and gave passes like a veteran, burst through his opponents like a baby tank and when all else failed went down on the ball in the gamiest possible manner. In the second half Sq. Ldr. Russell went back to his old place, Flg. Off. O'Malley went back to the scrum and Flt. Lt. Maxwell played full-back.

The R.A.F. started the scoring in the first few minutes of the game when O'Malley crossed over from a cut through by Massey. The kick at goal was charged down. The R.A.F. seemed to have more weight in the scrum, but Cambridge were heeling out smartly and getting the ball.

The Air Force got away well from a line out but Harvey on the left wing got a pass along the ground which nobody could have taken. The Cambridge three-quarter line started moving and were much too fast for the R.A.F. They were foiled once or twice but a clever "dummy" sold Russell and sent Roberts over for a try. Harvey, the fast Air Force left wing got the ball at last and gained a lot of ground before he passed to Hodder and was brought down. Hodder dropped the ball and the Cambridge forwards took it back with them, beat the Air Force backs again and scored a try which was converted.

The R.A.F. forwards then got the ball from a line out and led by a Chick kept the ball at their feet down the field. An injury to Chick stopped this movement, but when play started again O'Malley crashed through for the Air Force. Maxwell kicked a goal. The Cambridge-Welsh combine became very dangerous after that and the most desperate tackling only stopped them for a few minutes and Cambridge scored again, this time a goal.

The Air Force attacked again from a fine break-through by Massey and Cambridge were forced to touched down. The Cambridge three-quarters got the ball from the drop-out and left recumbent Air Force all over the place. Russell was too far back and swept Cooper and the ball into touch the wrong side of the flag. Another goal for Cambridge.

The alteration in the arrangement of the R.A.F. team took effect in the second half during the first few minutes when Russell, back at his own job, got the ball out and away for Franks to score a try near the corner. Soon after this somebody carelessly kicked the ball straight into the Cambridge hands and Newell scored an easy try. The goal kick failed, the ball hitting the post.



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The R.A.F. made several mistakes during this part of the game. Bryson stopped several promising movements by hanging onto the ball too long and Brookies fumbled badly once. Maxwell completely missed a rolling ball, but turned, picked it up and ran across with it gaining a good deal of ground and pushing Cambridge people over like nincomps. Chick started several good attacks in the loose and gave an inspiring display of footwork, but he was not properly backed up and did not get over although Cambridge were forced to touch down once.

Cambridge improved every minute. Their three-quarter attacks were most spectacular and the passing and handling at top speed was faultless. Rowe Harding took a reverse pass from Windsor-Lewis and made a wonderful run straight down the wing and scored behind the posts. Nobody in the R.A.F. side had a chance of catching him. He ought really to be entered for the Schneider Trophy. The goal kick was charged down.

The last try by Cambridge came from a combined attack by all their backs, Newell actually scoring. The Air Force defence held fast for the last ten minutes of the game which ended in Cambridge territory.—C. M. MCA.

The R.A.F. team were:—

Sq. Ldr. J. C. Russell, back; Flg. Off. H. H. Brookies, Plt. Off. F. S. Hodder, Flt. Lt. O. C. Bryson, and Flg. Off. G. D. Harvey, three-quarter backs; Flg. Off. C. J. S. O'Malley and A. C. D. Massey, half-backs; Flt. Lt. J. S. Chick, Flg. Off. P. G. Chichester, Flt. Lt. G. H. H. Maxwell, Flg. Off. A. Hesketh, Cpl. M. G. Christie, Flg. Off. J. G. Franks, Flg. Off. N. H. N. Reynolds, and Flg. Off. H. L. Patch, forwards.

R.A.F. v. Bristol.—The R.A.F. were beaten by Bristol at Bristol on Jan. 22, by a goal and a dropped goal (9 points) to a try (3 points).

Owing to the bad condition of the ground the game was mostly a forward one. Bristol were not quite at full strength and the R.A.F. were without Flt. Lt. Chick, who was unable to obtain leave. On the whole, the game was very even and the R.A.F. inside three-quarters managed to bottle up Mr. Corbett, the English Captain. Mr. Corbett, however, dropped a goal for Bristol and Mr. Stinchcombe scored a try, which was converted by Mr. Hore, both scores in the first half.

The R.A.F. held their own in the second half and Flg. Off. Harvey scored a try which was not converted.

The R.A.F. team were:—

Flg. Off. Moon, back; Flt. Lt. Bryson, Plt. Off. Hodder, A. C. Massey, and Flg. Off. Harvey, three-quarter backs; Plt. Off. Norwood and Sq. Ldr. Russell, half-backs; Flg. Off. T. H. Hale Munro, Flt. Lt. Maxwell, Flg. Off. Hesketh, Cpl. Christie, Flg. Off. Franks, Flg. Off. Reynolds, Flg. Off. O'Malley, and Flg. Off. Essex, forwards.

Tennis in the Middle East.

The R.A.F. Tennis Championships (Middle East Command) were held at Heliopolis Sporting Club on Dec. 13 to 17.

Record entries were received, and the Tournament was a great success, a particularly high standard of tennis being witnessed in some of the matches.

Special prizes were given by Air Vice-Marshal and Mrs. T. I. Webb-Bowen, and Air Commodore and Mrs. C. R. Samson.

The results were as follows:—

Men's Open Singles.—Winner, Flt. Lt. G. St. Noble, R.A.F. Depot (M.E.). Runner-up, Flg. Off. F. F. Inglis, No. 208 (A.C.) Sqdn., Ismailia.

Men's Handicap Singles.—Winner, Flg. Off. C. W. Price, H.Q., M.E. Runner-up, Sq. Ldr. J. Noakes, R.A.F. Depot (M.E.).

Men's Open Doubles.—Winners, Flt. Lt. B. P. Dixon and Flg. Off. C. W. Price, H.Q., M.E. Runners-up, Cpt. K. G. Brooke and Flt. Lt. O. St. Noble, R.A.F. Depot, M.E.

Mixed Handicap Doubles.—Winners, Flg. Off. C. W. Price and Mrs. T. H. Evans, H.Q., M.E. Runners-up, Flt. Lt. Johnson and Mrs. J. H. Green, No. 208 (A.C.) Sqdn.

Men's Handicap Doubles.—Winners, Flg. Off. F. F. Inglis and Flg. Off. R. G. D. Thomas, No. 208 (A.C.) Sqdn. Runners-up, Flt. Lt. E. J. McLoughlin and Flg. Off. E. E. C. Hobson, No. 216 (Bombing) Sqdn.



AN IRAQ HOCKEY TEAM.—The 1926-27 Hockey Team of the Central Supply Depot, R.A.F., Hinaidi, Iraq. The names are, from left to right (standing): F-S. Cornish, W. J. Swift, G. Dass, M. E. Kannon, Ahmed Khan, Bansi Lal, Abdul Sattar, Sjt. Perry. (Sitting): F-S. Mills, Flt. Lt. P. F. Connaughton, Sq. Ldr. A. Burtenshaw, Flg. Off. G. W. Longstaff, Sjt. White, F-S. Evans. On the floor): Multani and R. Shaikat.

Ladies' Handicap Singles.—Winner, Mrs. K. G. Brooke, R.A.F. Depot, M.E. Runner-up, Mrs. N. P. Dixon, H.Q., M.E. Winners of Unit Challenge Cup.—H.Q., M.E. and R.A.F. Depot (M.E.) tied.

Hockey.

R.A.F. v. Tulse Hill.—The R.A.F. beat Tulse Hill on Jan. 19 by two goals to one. The Tulse Hill team, which was not at full strength for the game against the R.A.F., beat the Navy by four goals to one and the Army by five goals to three, last December. The R.A.F. team were:—

AC. Reid, goal; Sq. Ldr. F. J. Murphy (captain) and Flg. Off. C. F. Roupell, backs; Flg. Off. Culverwell, Sjt. Middleton and Cpl. Hough, half-backs; AA. Stevenson, Plt. Off. Howes, Flt. Lt. O'Shea, Plt. Off. Hall, and Flt. Lt. H. H. Hampton, forwards.

The Iraq Command Hockey Cup.

The final match for the Iraq Command Hockey Cup was played at Hinaidi on Dec. 22, 1926, between No. 84 (Bombing) Sqdn., Shaibah, and "A" Depot Sqdn., Iraq Aircraft Depot, Hinaidi. The game resulted in a win for No. 84 Sqdn. by one goal to nil. The winning side showed splendid combination and were faster than their opponents. The goal was scored by AC. Talbut after a dashing forward movement in the first 15 minutes' play.

After the match the Cup was presented to the winners by Group Capt. F. C. T. Maclean, D.S.O., M.C., who said that he had watched both the games in which No. 84 Sqdn. had played and he had not seen two cleaner or more sporting games in the Hinaidi Area.

Swimming.

The following is the result of the R.A.F. Swimming Association First Certificate Competition. The figures in brackets are the percentage of personnel who have qualified for the Certificate during 1926:—

1, H.Q., Inland Area (44.57); 2, H.Q., Coastal Area (39.28); 3, Felixstowe (28.63); 4, H.M.S. Eagle (23.38); 5, Manston (15.50); 6, Calshot (15.31); 7, Eastchurch (10.73); 8, Sealand (8.84); 9, Shrewsbury (7.67); 10, Old Sarum (7.43); 11, Gosport (6.99); 12, Ruislip (3.61); 13, Kidbrooke (3.44).

The Storage of Private Vehicles in the R.A.F.

Amendment List No. 26 to Air Publication 958 (King's Regulations), dated Jan. 1, 1927, adds the following paragraph to clause 2, Para. 1994:—

The privilege of storing motor vehicles in air force premises is liable to be withdrawn at any time and will at the discretion of the C.O. be withdrawn either permanently or for a specified period if the owner of a motor vehicle is convicted of an offence in respect of the vehicle or has in the opinion of the C.O. driven the vehicle dangerously or improperly. The withdrawal of this privilege will be without prejudice to disciplinary action in respect of an offence.

It may be added for the benefit of those who do not possess a copy of King's Regulations and imagine that the personnel of the R.A.F. ever get anything for nothing, that Para. 1994, clause 3, lays down that "a uniform charge of 5s. a month (four weeks) in respect of each vehicle will be made, irrespective of the type of car."

FRANCE—MADAGASCAR.

On Jan. 21, Commandant Dagnaux and his mechanic, Dufert, who left Le Bourget on Nov. 29 to fly to Madagascar, concluded his flight by arriving at Majunga, on the west coast of the island.

The route followed by Commandant Dagnaux varied from that followed by *Lieut. de Vaisseau* Bernard in that he flew across the Sahara to Niamey, on the Niger River, instead of following the West Coast.

He was held up in the Belgian Congo by torrential rains, which completely flooded all landing grounds for a considerable period.



THE WINNERS OF THE IRAQ HOCKEY CHALLENGE CUP, 1926-27.—No. 84 (Bombing) Squadron's Hockey Team, Shaibah, Basra. The names are, reading from left to right (back row): L-AC. Lockhead (Station Reliefe), AC. Huggins, L-AC. Browne, AC. Clarke, AC. Ross, L-AC. Wilce (Club Hon. Sec.). Middle row: Cpl. Goffe, Flg. Off. Walker, Flg. Off. Hardy (capt.), Sjt. O'Connor, Cpl. Canter. Front row: L-AC. Milton, AC. Small, AC. Talbut.

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THE BEST IN THE WORLD

Three Dornier-Wal Flying Boats, equipped with Rolls-Royce Engines and belonging to the Spanish Military Forces, have recently flown from the North Coast of Morocco to Fernando Po in Spanish West Africa

Starting from Melilla, these machines flew by way of Casablanca, Las Palmas and Lagos, the total distance being
4,500 miles

In the flights across the North and South Atlantic, and to India, South Africa, and Australia, Rolls-Royce Engines were the first to accomplish the tasks

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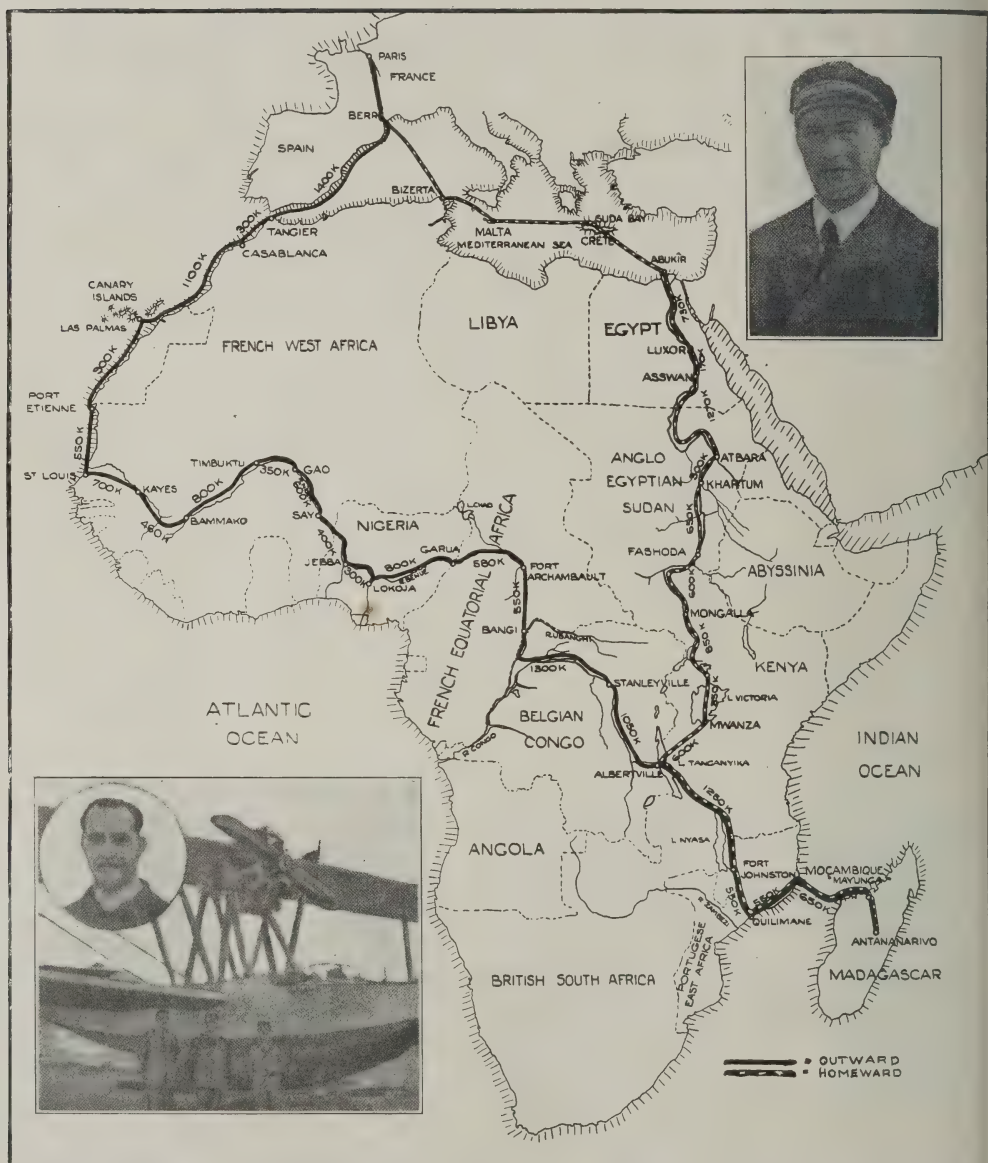
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ough Central Africa with a JUPITER engine, without either repair or replacement.

Never before, even in the history of great deeds in the air, has there been a journey more romantic than that of Lt. Bernard and Premier Maitre Bougault in their Jupiter-engined Liore and Olivier flying boat.

Down the coast of Spain and along the West African seaboard; then steadily southwards and eastwards through the very heart of Africa, with the steady drone of the Jupiter never varying in its note. Over vast forests and across towering hills where faltering of the engine would have spelt disaster, covering as much as 800 miles in a single day till away in the distance appeared the blue line of the Indian Ocean; and on across 400 miles of open sea till Madagascar was reached.

Then back by way of the Great Lakes and the historic valley of the Nile, with the Jupiter maintaining an unvarying beat, monotonous in its regularity but inspiring confidence by its very monotony. Across the Mediterranean to Crete, Malta, Bizerta and the French coast. And then the final lap to Paris.

Nearly 18,000 miles over unknown land! A bold flight that will live in history. Nearly 18,000 miles under the most trying conditions possible without a single repair to the engine or a single replacement. That is a fact, too, that posterity will not forget and by which the present generation can benefit and is benefitting. For all over Europe there are Jupiter engines yielding service just as sound as this and just as valued in the opening-up and maintenance of air communications.

BRISTOL.

Telephone:—3906 BRISTOL.

Telegrams:—AVIATION, BRISTOL.

THE SCHNEIDER TROPHY COMPETITION, 1927

Following on the decision of the F.A.I. to hold the Schneider Trophy Competition every two years, Italy has put forward a proposition that the competition shall revert to an annual affair as hitherto.

A meeting of the *Fédération Aéronautique Internationale* was held in Paris on Jan. 25 and a decision was then reached.

It is officially announced that at this extra-ordinary Committee Meeting of the *Fédération* it was decided that the next Schneider Trophy Competition shall be held at Venice in September of this year, 1927.

Further details will be announced at a later date.

That, of course, puts Great Britain out of any chance of winning, unless some Mussolini-cum-Macchi arises in this country during the next five or six weeks. All our Schneider machines intended for 1928 were designed early in 1926, and, judging by precedent, there is little chance of any of them being completed before 1929,—by which time they will still be of 1926 design, much as our 1925 representative was practically of 1922 type.

A COURTESY VISIT.

On Jan. 24 twelve Curtiss P.15 of the 1st Pursuit Group, U.S. Army Air Corps, left Detroit, on a visit to Ottawa and Montreal. The trip is intended as a test of the mobility of a pursuit squadron flying to a pre-arranged schedule.

In Canada the pilots will be the guests of the Royal Canadian Air Force, and at Ottawa will be the guests of honour at the annual military ball of the Ottawa Garrison.

All the machines will be fitted with skis. At Ottawa they will land on the frozen St. Lawrence river and at Montreal on a frozen lake nearby.

They are due to arrive at Ottawa on Jan. 24, at Montreal on Jan. 25, and will return to Buffalo on Jan. 26, and Detroit on Jan. 27.

Five mechanics will accompany the flight on a Douglas C.1 eight-seat transport biplane.

THE JUNKERS-WERKE FREE AGAIN.

The negotiations between the Reich, or German Government, and the Junkers-Werke have had the result that the Reich is willing to leave the Junkers-Werke, which can now be run on lines which formerly assured to them—before the participation of the Reich—their successful ascent.

On Dec. 23 the agreement was signed. Negotiations had been going on for several weeks with a view towards an agreement. It is known that a number of expert opinions were available which supported the demands of the Junkers-Werke. Also the President of the State Law Court, Dr. Simons, had been asked to act as an intermediary and he also supported the claims of the Junkers-Werke. It also must be mentioned that a considerable number of leading personalities in Anhalt and also of Dessau energetically worked for the Junkers cause.

However, the agreement would not have been arrived at so quickly if the economy section of the Reichstag and the sub-committee appointed in the matter had not taken up the matter so eagerly.

It must be emphasised that in the result the Junkers-Werke are now quite free from any outside influence. Naturally all efforts have to be made to regain for the Works their former profitable state. None will doubt that the Junkers-Werke will be able to do so.

The fact of carrying through the dispute with the Reich in spite of enormous difficulties shows the energy and tenacity with which the task is tackled. There is confidence everywhere that the Works will now have prosperous developments.

AERONAUTICAL ENGINEERS IN MANCHESTER.

The Manchester Branch of the Institution of Aeronautical Engineers has just been reconstructed on sound and progressive lines, under the Chairmanship of Mr. R. H. Dobson, of A. V. Roe and Co. Ltd.

The Honorary Secretary and Treasurer is Mr. A. Denison Scarlett, M.I.Ae.E., of Foxbank Street, Chorlton-on-Medlock, Manchester.

This reconstruction was decided at a meeting held last Friday in Manchester, which was attended, amongst others, by Mr. John Lord and Mr. Bert Hinkler.

This Branch deserves every encouragement, and the more publicity that is given to its activities the better.

A DANISH HEIGHT RECORD.

Lieut. Topsø-Jensen, of the Danish Naval Air Service, recently reached a height of 8,600 m. (28,208 ft.) on a Hawker Danecock (Jaguar engine). This climb, made under normal Service conditions, constitutes a Danish height record. During the climb a minimum temperature of -52° Centigrade (3° Fahrenheit) was experienced.

THE FOCKE-WULF G.L.18.

The latest product of the Focke-Wulf Flugzeugbau G.m.b.H. of Bremen is a twin-engined monoplane fitted with two 75 h.p. Junkers L.12 engines, and known as the type G.L.18. It is a cantilever monoplane very much on the lines of the Focke-Wulf A type monoplanes, from which it differs principally in having the two engines built into the leading edge of the Taube-shaped wing.

The cabin accommodates three or four passengers. The pilot's cockpit, in the extreme nose of the fuselage, is protected by a wind screen which slopes back to the wing and can be equipped with a second pilot's seat and dual control if desired, the machine being then suitable for twin-engined aircraft training. The engines normally fitted are the 75 h.p. Junkers L.12 air-cooled six-cylinder-in-line type, but these can be substituted by either the 75 or 100 h.p. Siemens radial engines.

In type tests carried out under the control of the Deutsche Versuchsanstalt für Luftfahrt the machine was flown with full load on one engine over a distance of 7 kms. (4½ miles) with a loss of height of only 100 m. (330 ft.). At a demonstration carried out by Direktor Wulf at Staaken on Aug. 9 before representatives of the Reichs Ministry of Transport and the directors of the Deutsche Luft Hansa, prior to acceptance of the machine by the latter, it was shown that the extra large rudder provided is sufficient to keep the machine on a straight course with one engine cut out. The performance figures given hereafter are those made during the D.L.H. type tests.

Specification.

Span	16 m. (52 ft. 6 ins.).
Length	8.8 m. (28 ft. 10 ins.).
Height	2.6 m. (8 ft. 6 ins.).
Wing area	34.5 sq. m. (372 sq. ft.).
Wing loading	42 kgs./m ² (8.6 lbs./sq. ft.).
Power loading	9.7 kgs./h.p. (21.4 lbs./h.p.).
Weight empty	925 kgs. (2,040 lbs.).
Service load	230 kgs. (507 lbs.).
Useful pay load	295 kgs. (650 lbs.).
Maximum loaded weight ..	1,450 kgs. (3,197 lbs.).

Performance.

Speed maximum ..	145 km. p.h. (90 m.p.h.).
Speed landing	85 km. p.h. (53 m.p.h.).
Climb to 1,000 m. (3,280 ft.)	10 mins.
Landing run	115 m. (380 ft.).



THE FOCKE WULF G.L.18.—A recent twin-engined German commercial monoplane fitted with two 75 h.p. Junkers L.12 air-cooled engines. It has accommodation for pilot and three passengers.

Blackburn

BLUEBIRD



EXTRACTS FROM A PILOT'S DIARY RETURNING FROM A PLEASURE CRUISE ON THE CONTINENT

Dec. 12th. Heavy mist through which we could just see about half way across the aerodrome. We decided to push on to Beauvais where the fog was reported to be less dense..... had we been in any other machine than the BLUEBIRD I doubt whether we should have done so. Its low stalling speed, combined with the comfortable cockpit and confidence given by the occupants sitting side by side & being able to talk to each other, made the world of difference, & tended to make one forget the usual uneasiness one feels when flying under such conditions.

Arrived Abbeville 14.00. Having decided to stop the night we picketed down the BLUEBIRD & left it in the open with a sheet over the engine & cockpit.

The GENET started up without the slightest trouble notwithstanding the fact that it had stood out all night. We left Abbeville 11.35 after putting 4 gallons of "B P" petrol into the tank to make certain of reaching Lympe without running short.

We found Cape Grisnez with clouds at 100 ft & St. Inglevort getting clearer; we circled around the aerodrome & then made a course across the Channel.

We reached Folkestone twenty minutes later..... During the whole trip not a single thing was done to the machine or engine excepting in the latter case, to clean the plugs.

It was a very enjoyable trip & we are very keen on repeating it in fine weather.

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THE FIRST BRITISH INVERTED ENGINE.



A STEP IN THE RIGHT DIRECTION.—The old Avro Aldershot with the Beardmore Typhoon engine.

On Monday, Jan. 24, the Beardmore Typhoon engine, installed in an Avro Aldershot machine, was publicly exhibited at A. V. Roe and Co.'s aerodrome at Hamble. Despite the fact that this exhibition was approved by the Air Ministry the Typhoon is still on the part publication (or part secret) list, and therefore one is not permitted to divulge more than externally observable details concerning this very interesting engine.

The Typhoon is an inverted edition of the Beardmore Cyclone engine, photographs and specifications of which have already been published.

The salient features of the Typhoon (other than that of its inversion) are that it develops between 800 and 900 h.p. at approximately 1,300 r.p.m., from six cylinders arranged in a straight line.

Naturally any six-cylinder-in-line type of engine can be installed into a fuselage nose much narrower than will accommodate any Vee or radial type of engine of the same power. And an inverted engine will permit of the nose projecting less above the airscrew axis than is possible with any cylinder-on-top type.

The Typhoon therefore allows of a top deck to the fuselage both narrow and well sloped downwards. Thus it gives the designer an opportunity for providing the best possible view ahead and downwards.

The use of a small number of large cylinders necessarily makes for an engine having a small number of working parts, each of them relatively robust, and should therefore make for reliability and long life. Further, it makes for economy, for large cylinders, other things being equal, give somewhat higher thermal efficiencies than do small ones, and a small number of cylinders simplify the problem of distribution and make it easier to obtain uniform output and efficiency from all cylinders.

As against these advantages it might be feared that the

individual kick from six cylinders each developing about 150 h.p., would lead to violent torque reaction, rough running, and serious vibration troubles, and that a six-cylinder engine of this size would necessarily be heavy.

Taking the last objection first, the answer is that the present Typhoon weighs about 2½ lbs. per h.p., and that the newer version of the engine with improved carburetors develops another 150 h.p. or so for slightly less total weight.

As to vibration it can be said that the Typhoon in the Aldershot is notably smooth-running. At idling speeds, with an occasional misfire, the engine flicks visibly at the cylinder heads—but certainly nothing like so badly as some other well-known engines with more cylinders and of less power will do under similar conditions.

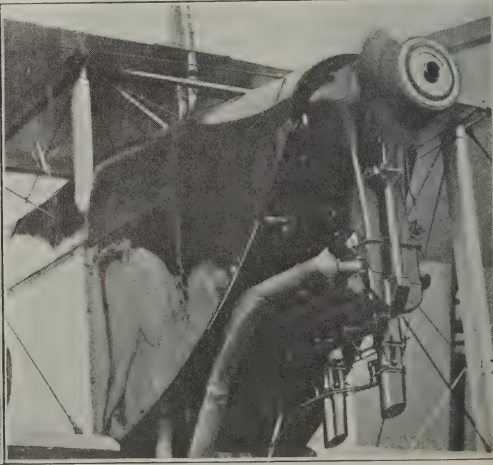
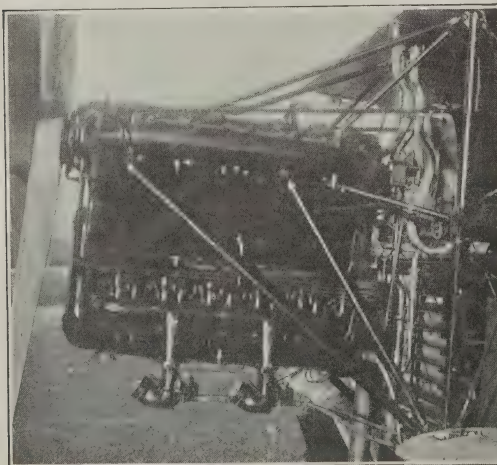
At all service speeds the engine runs dead steadily, and Mr. Hinkler is extremely satisfied with the smoothness of it in the air.

One very notable feature of the Typhoon is the extremely low fuel and oil consumption, which are said to total only 0.46 lbs. per h.p. hour. About 0.55 lbs. per h.p. hour is an average figure for a modern poly-cylindered type, and the saving in fuel weight for a five-hours' flight would bring the total weight of the Typhoon plus fuel to equality with that of an engine of average fuel consumption weighing ½ lb. per h.p. less than the Typhoon.

For long-range aircraft, the saving in fuel therefore easily outbalances any slight increase in engine weight arising from the use of a small number of cylinders.

The Aldershot machine, to which the Typhoon is now fitted, is the same machine as that which once housed the first Napier Cub. It had been returned to A. V. Roe and Co. Ltd. to be reconditioned, and to be fitted with the Typhoon. In addition it has been equipped with a set of steel wings designed and built at Hamble.

From one of the photographs reproduced it can be seen



INSTALLATION.—The Beardmore Typhoon (6-cylinder 800-900 h.p.) as fitted in the Avro Aldershot.

VICKERS *Limited*

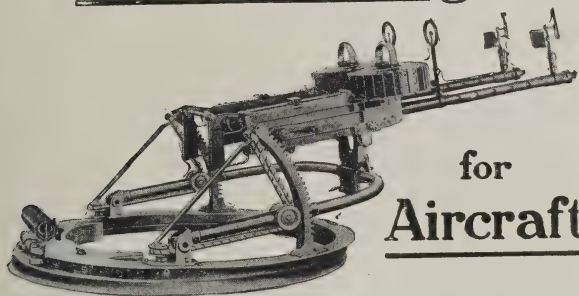
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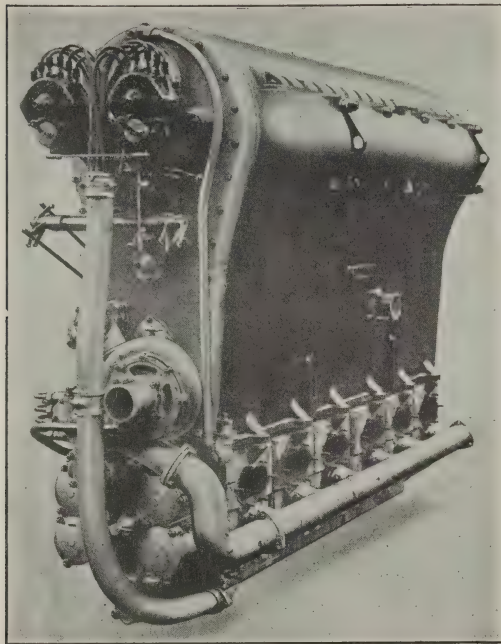
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Aviation Department:
Vickers House, Broadway,
LONDON, S.W.1.



Telephone: VICTORIA 6900
 Telegrams: VICKERS, SOWEST, LONDON.



INVERSION.—The Beardmore Typhoon—800-900 h.p., from six inverted cylinders in line.

how simply the Typhoon may be mounted. No engine-bearers are required—the crankcase itself being sufficiently rigid to dispense with these external aids. All that is necessary to carry the engine is a set of four steel tubes on each side running to the fixings provided on the crankcase.

In the Aldershot these tubes run two from the bottom of the fuselage upwards, and two from the centre section downwards, on each side, and, as may be seen, form but the slightest obstacle to access to the engine.

The fuselage of the Aldershot was designed to accommodate a much wider engine, and in consequence it has not been possible to take full advantage of the Typhoon's narrowness. There is nevertheless a marked gain in the pilot's view, which could be greatly increased by redesigning the fuselage.

As to the actual demonstration, it can only be said that the Typhoon starts up surprisingly readily under the influence of its gas-starter, ticks over at an amazingly low speed, and opens up faultlessly.

It takes the Aldershot off the ground with a remarkably short run, and inspires Mr. Hinkler with confidence to play tricks with the machine much closer to the ground than he would take with an engine about which he had doubts.

Figures as to the performance of the Aldershot with the Typhoon are not available, and would mean nothing if they were. The airscrew at present fitted is a little heavy and holds down the engine revolutions. The radiator fitted is too large. And the carburettors at present installed—the largest available at the time the engine was ready for test—are a shade too small. But there is no doubt that the Typhoon develops plenty of power.—W. H. S.

THE EVANS CRASH-PROOF TANK.

Some months ago THE AEROPLANE mentioned a new type of protective coating for petrol tanks devised by Major H. H. Evans, of 24, Craven Street, W.C.1. This it will be remembered consists of a gelatinous compound which can be cast round an ordinary tank, forming a layer which acts both as a shock absorber, and as a self-sealing petrol container.

Recently Major Evans has constructed an experimental tank consisting of two tinned sheet-steel skins, one within the other, separated by a relatively thin layer of the gelatinous compound. A rectangular tank of this type, of ten gallons' capacity, containing about seven gallons of water was taken up in an aeroplane at Stag Lane recently and was dropped overboard from a height of 300 ft.

Naturally the tank was very seriously deformed, but it remains perfectly free from leaks, and in no case have any of the joints in the tank seams given.

This particular tank is notably heavier than a normal unprotected tank, but this is inevitable in a tank of small capacity, where the total area of tank surface is large in relation to the cubic capacity.

A CHANCE FOR SERIOUS AIR RACING.

An aerodrome specifically intended for air racing is to be prepared in conjunction with the new motor road-racing track now under construction on the Downs above and to the west of Brighton.

Here would seem to be the chance of a lifetime for someone other than the Royal Aero Club to run race-meetings which would be really of value in the mass-production of air-mindedness.

Brighton is within easy reach of London by train and by car, and there is to be a station right in the new motor track. There are always crowds of people at Brighton, and Brighton is always a draw in itself for Londoners.

The area for starting and landing will have a greatest length of nearly half a mile, and the surface is good. The surroundings are attractive from an aesthetic point of view and also from the point of view of forced landings.

One of the moving spirits of the scheme is Mr. Herman Volk, who, besides being a partner with his father, Mr. Magnus Volk, in, and chief engineer of, the popular sea-front electric railway at Brighton, operated the first civil seaplane service station in Europe at Brighton in the pre-war days of 1912 or so and has been financially and otherwise interested in aviation ever since. He will be remembered by many as producing at the Gosport Aircraft Co., just after the Armistice, the biggest flying-boat hull in the World at that date.

One hopes that this venture will provide that psychological momentum in sporting flying for which post-War aviation has been watching and praying.

THE ROYAL AERO CLUB'S HOUSE DINNER.

The Royal Aero Club's House Dinner, held on the evening of Wednesday, Jan. 19, was as cheering and as interesting a function as any of its predecessors. Mr. T. O. M. Sopwith occupied the chair, Air Vice-Marshal Sir John Higgins, K.B.E., C.B., D.S.O., A.F.C., the new Air Member for Supply and Research, was present as the guest of the evening, and Mr. C. R. Fairey opened a discussion under the very comprehensive title of Aviation.

Mr. Fairey's main theme was the danger to the development of British Aviation of the spirit of international agreement which was so potent at the present time. The direct influence of this spirit was to be found in the International Convention for Air Navigation. Recent conferences between the Royal Aero Club and the Air Ministry on the subject of the restriction of private flying showed that although the Air Ministry was willing to make concessions the International Convention limited their freedom. This body seemed to be able to legislate very much as though they were Kipling's Aerial Board of Control.

It was obviously necessary that there should be some international agreement on such matters as registration marks and rules of the road in the air, but it was a little too much when they could interfere in the control of domestic flying.

He had no authoritative knowledge but he believed that there was a danger of the International Convention laying down standard rules for Certificates of Airworthiness.

Why should we submit to International standards in such matters?

Was it to our advantage to pull all the other nations up to our level in these matters?—or to drop to theirs? We had in times past set our own standards in marine navigation, other nations had tried to live up to them but we were still the leading maritime nation. We should not have been so had our standards been agreed between our rivals and ourselves.

Our past had been built on a policy of isolation. It was said we could no longer afford isolation. It was true that national profit and loss accounts of the past few years were somewhat unpleasant affairs, but the financial position of any big concern was judged on its balance sheet. And we—though we had had our bad years—owned one-quarter of the habitable globe, and assets that would swamp those of all our rivals.

Our future lay in developing our own Empire, and for that we wanted freedom to carry on our own business in our own way—not international agreement with peoples whose interests were vastly different from our own.

Some years ago the Government had decided that an Air force of 52 squadrons was the minimum for our security. That conclusion was accepted by the Labour Government, but the present Government had gone back, out of consideration for the Locarno spirit. If 52 squadrons was the minimum for safety, what was the use of 26. We were dependent for safety—for the first time in history—on the goodwill of our possible enemies.

In the ensuing discussion Mr. Fairey's objection to foreign control of our domestic affairs was vigorously supported by the great majority of speakers, and a very cheery and harmonious meeting broke up between 11 and 12 p.m.

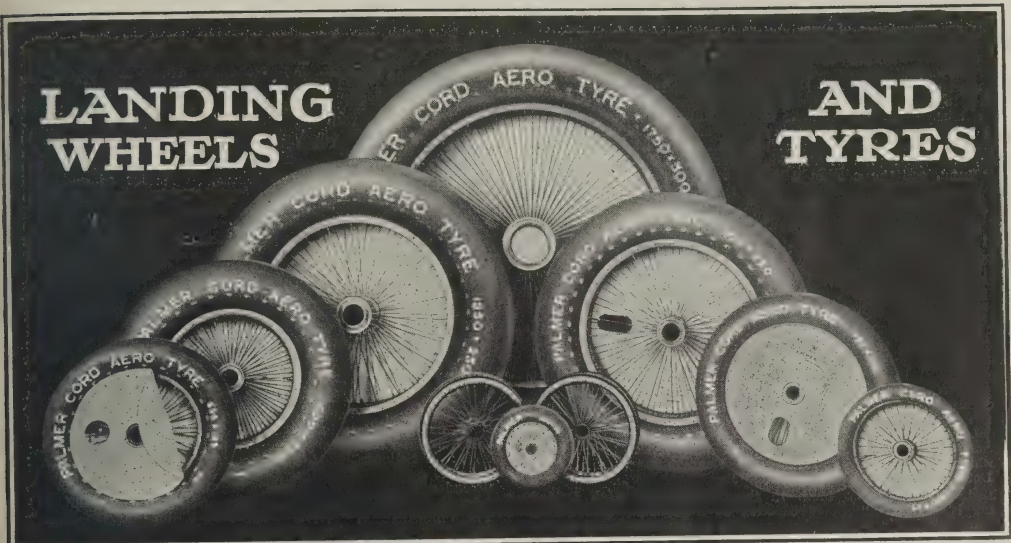


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375×55	168	m/m 111.12	m/m 25.4	m/m Central	700×100	112	m/m 150.	m/m 38.09	m/m Central	1000×150	210	m/m 185.	m/m 60.32	m/m Central
300×60	16	111.12	25.4	Central	"	176	178.	44.45	Central	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	"	179	178.	55.	132/46	"	149	185.	55.	Central
"	172	130.	38.09	Central	650×125	119	178.	55.	132/46	"	155	220.	66.67	Central
575×60	21	160.	28.	Central	"	147	178.	55.	Central	"	166	185.	55.	125/60
"	80	150.	38.09	104/46	"	188	120.	34.92	Central	900×230	107	185.	55.	Central
"	186	120.	34.92	Central	750×125	77	178.	44.45	132/46	"	108	185.	55.	125/60
"	90	150.	38.09	Central	"	92	185.	55.	135/50	"	128	220.	66.67	Central
650×65	78	178.	44.45	132/46	"	95	185.	55.	Central	"	137	250.	80.	Central
"	79	178.	44.45	Central	"	99	178.	38.89	132/46	"	157	185.	80.	Central
"	100	178.	38.09	132/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
"	101	178.	31.75	132/46	"	176	178.	44.45	Central	1100×220	134	220.	66.67	Central
800×75	21	160.	28.	Central	"	179	178.	55.	132/46	"	136	250.	80.	Central
"	180	150.	38.09	104/46	800×150	161*	185.	55.	135/50	"	192	185.	60.32	Central
"	186	120.	34.92	Central	"	162*	185.	55.	Central	975×225	194	185.	55.	125/60
"	190	150.	38.09	Central	"	163*	185.	66.67	135/50	"	199	250.	80.	Central
700×75	78	178.	44.45	132/46	"	169†	185.	55.	135/50	1250×250	133	250.	80.	Central
"	79	178.	44.45	Central	"	177	185.	55.	135/50	"	154	304.8	101.6	Central
"	100	178.	38.09	132/46	"	183	185.	55.	Central	1500×300	115	304.8	101.6	Central
"	101	178.	31.75	132/46	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
700×100	77	178.	44.45	132/46	1000×150	167	185.	55.	125/60	1750×300	139	400.	152.4	Central
"	92	185.	55.	135/50	"	174	250.	80.	Central	"	191	350.	150.3	Central
"	95	185.	55.	Central	"	182	185.	55.	Central	"	193	400.	125.	Central
"	99	178.	38.89	132/46	"	187	220.	66.67	Central					
					"	201	185.	60.32	125/60					

*Wheels Nos. 161, 162, 163 and 211 are of stronger type than the other wheels for 800 × 150 tyres. †Wheel No. 169 is fitted with Ball Bearings.
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

AIR COMMODORE WEIR ON IMPERIAL AVIATION.

On Monday, Feb. 7, the Royal Aeronautical Society will hold, by courtesy of the Royal Aero Club, a Dinner at 3, Clifford Street, at 19.15 for 19.30 hours, to be followed by an informal discussion on "Comfort in Commercial Aircraft." The discussion will be opened by Air Commodore J. G. Weir, C.M.G., C.B.E., Fellow of the Royal Aeronautical Society, who has just returned from Cairo after flying there in the first de Havilland Hercules (Bristol Jupiter engines) to be sent out for the Cairo-Karachi service.

During the War Air Commodore Weir did a great deal of flying and was in charge of technical work at the Air Ministry towards the end of the War, and so he is particularly well entitled to speak critically on the subject of travelling as a passenger in a commercial machine. Also this is the first occasion on which anybody with such experience has travelled over so great a distance in a modern commercial aircraft.

A number of other persons of practical and technical experience have promised to attend and speak in the discussion.

The number of places available at the Dinner is strictly limited, and therefore those desirous of attending should apply at once to the Secretary, The Royal Aeronautical Society, 7, Albemarle Street, London, W.1. The price of the Dinner, exclusive of drinks, will be 6s. per head, and the amount will be collected at the table.

THE D.H. MOTH IN AMERICA.

It will be remembered that at the time of Sir Alan Cobham's departure for the United States it was mentioned that it was possible that the particular Moth he took out with him to deliver to Mr. Kenneth B. Walton would be studied by a well-known American aircraft manufacturer with a view to its reproduction under licence.

The following statement, taken from the American journal, *Western Flying*, throws some further light on this subject:

Much interest was displayed in aviation circles when Sir Alan Cobham arrived in the United States, bringing with him a D.H. Moth powered with a *Cyrus* (sic) 75 h.p. engine. After arriving in this country the Moth substituted its pontoons for wheels, and England's now famous "Knight of the Air" and his wife flew from Staten Island to Washington, D.C., in order to keep a luncheon engagement with President and Mrs. Coolidge. After their arrival in Washington, the plane was flown by Kenneth B. Walton to the Huff Daland airplane plant at Bristol, Pa.

With the arrival of the Moth in this country, the Huff Daland Company is considering the production of a popularly priced two-seated airplane designed particularly about a modern air-cooled engine of from 60 to 80 h.p. The company has distributed a questionnaire to determine what type of airplane prospective customers desired.

During the first ten days in December, 145 replies to this questionnaire were received. As a result and with the De Havilland Moth as a basis, the Huff Daland Airplanes Inc. is planning on the design of a light, low horse-power plane. If, however, the Moth in the final analysis is proven to be the acceptable type of light sport airplane, it is then possible that the Huff Daland Airplane Company may apply for the right to manufacture these ships in this country.

THE FLYING CLUBS.

London Aeroplane Club.

Report for week ending Jan. 23.

Flying during the week was restricted to two days, owing to snow, rain and fog. The total flying time was 11 hrs. 55 mins.

The following members had flying instruction: D. S. Hewitt, A. J. Richardson, H. Solomon, F. T. Stephens, I. J. Hofer, C. R. Campkin, A. E. Leeding, C. H. Swan, E. A. Lingard, G. N. Howe, Lady Bailey, M. P. Susman.

The following members flew solo: Lady Bailey, H. Solomon, C. E. Murrell.

The following member had a joy-ride: The Hon. R. Westerna.

All four machines are now in commission again.

The Lancashire Aero Club.

Report for week ending Jan. 22.

Total flying time for the week 10 hrs. 25 mins., made up as follows:—

Dual with Mr. Brown: Messrs. Crosthwaite 55 mins., Dickinson 40 mins., Gatterell 50 mins., Forshaw 30 mins., Newton 35 mins., Keays, Meades and Nelson 25 mins. each, Costa 15 mins.

Solo: Messrs. Michelson 1 hr., Slater 50 mins., Twemlow 50 mins., Hardy 15 mins., Williams 10 mins., Crosthwaite 10 mins.

Joy-rides: With Mr. Costa—Mr. Gouto 30 mins. With Mr. Cantrill—Mr. Hill 25 mins. With Mr. Lacayo—Mr. Dean 15 mins.

Test flights: 1 hr.

Splendid skiing weather has prevailed during the latter part of the week and the central skid in the Avro undercarriage has proved most useful in taking-off and landing. The Moths, being without this valuable attachment, found the snow too deep for them by Saturday and had to sulk on the deck.

Undertired by the Polar conditions Mr. Crosthwaite made his first solo during the week and put up a very nice show.

By Sunday afternoon the thaw had progressed far enough to let the two serviceable Moths, LR and MQ, get off the ground once more. Unfortunately their enforced idleness had rendered them a bit skittish and they promptly proceeded to butt one another in the ribs, so to speak, in a playful manner. The result reminded one of the old riddle about "Why is a Moth fluttering round a candle like an open gate?" the answer being that "If it keeps on its 'inges it swings."

The Newcastle-upon-Tyne Aero Club.

Report for week ending Jan. 23.

Total flying time 28 hrs. 35 mins. Moths—LX, 22 hrs. 25 mins., LY, 5 hrs. 25 mins.; Avro—PO, 45 mins.

Dual instruction with Mr. J. D. Parkinson 3 hrs. 15 mins.

Solo (Training) 12 hrs., "A" Pilots 5 hrs. 45 mins., Joy-rides 1 hr. 10 mins.

Weather tests 15 mins.

The following members flew under instruction: Miss Leathart, Mr. Stawart, Mr. Wardill, Mr. Wilkinson, Mr. Jackson, Mr. Rasmussen, Mr. Turnbull and A. Bell.

Advanced dual: Mr. Irving, Mr. C. Thompson, Mr. H. Ellis.

Solo: Miss Leathart, Mr. Stawart, Mr. Mathews and A. Bell.

"A" Pilots—Mr. Irving, Mr. R. N. Thompson with the following passengers—Mr. J. Bolt, Mr. R. Stephenson, Mr. H. Ellis. Mr. H. Ellis flew with Mr. Thompson and Mr. Percy as passengers. Mr. C. Thompson with Mr. Heslop. Mr. Baxter Ellis also carried some friends as passengers.

Mr. Parkinson flew with the following as passengers: Mr. Woodeson, Miss Davies, Miss Sawyer, Miss Southern.

Avro G-2BPO: Mr. Ellis flew with Dr. Bell and Mr. G. Ervin, and Mr. Parkinson with Mr. Phillips and Mr. Peacock.

Lord Ossulston and Mr. J. D. Irving collected LY from Stag Lane, where it has been under repair, on Saturday. They were prevented by bad weather from leaving until 1.0 p.m., and flew for a considerable distance through snowstorms, so decided to put down at Cranwell. They proceeded on Sunday, reaching Chillingham at 1.5 p.m., after anything but a pleasant journey.

Lord Ossulston had arranged to lecture in Newcastle on Sunday evening, and desired to return to Chillingham Castle afterwards. There is, unfortunately, no telephonic communication with Chillingham on Sundays, so it was impossible to order a car to take him home. He therefore flew to Chillingham, landing on an aerodrome which he is having prepared for his own Moth, ordered his car to meet him, and flew back to Cramlington, delivering his lecture "according to plan."

The aerodrome appeared very active on Sunday, with three machines flying, in spite of the cold, mist and snow, and creates promise of great activity when better weather conditions arrive.

The Midland Aero Club.

Report for week ending Jan. 22.

Total flying time 11 hrs. 54 mins.

The following members were given dual instruction by Flg. Off. Glover: C. Fellowes, S. H. Smith, G. H. Aldridge, A. Ellison, J. C. Rowlands, and F. Coxhill.

Secondary dual: A. B. Gibbons.

Advanced dual: R. L. Jackson, W. Swann.

The following "A" pilots made solo flights: W. Swann, H. J. Willis, E. J. Brighton, R. L. Jackson.

Passengers with Mr. Brighton: D. M. K. Marendaz, V. Horsley. Mr. Brighton flew the Austin Whippet for 2 hrs. 25 mins. during the week.

The Yorkshire Aeroplane Club.

Report for week ending Jan. 21.

Total time flown 5 hrs. 25 mins., as follows:—

Solo, 2 hrs. 55 mins.; dual instruction, 2 hrs. 10 mins.; and joy-rides, 20 mins.

Out of this total time, Sunday was responsible for 3 hrs. 50 mins. in 19 flights. There were 26 flights altogether.

The following members flew solo: Messrs. Carter, Dawson, Mann and Wood; while those who received instruction were Messrs. Gardner, Mann, Oglesby, Richardson and Swift.

The joy-rides were Mr. Bamford and his son, who are residents of Harrogate. It was their first experience in the air. Mr. Bamford, Senior, although well on in years, is contemplating joining the Club as a flying member.

On Sunday, Mr. Dawson flew over to his home at Nun Appleton Hall, York, to fetch a small cinema camera. On his return he and Mr. Mann treated us to a thrilling display of formation flying as they photographed each other from the air.

Our "A" licence enthusiasts are still waiting patiently until Mr. Loton can come to observe the tests, although their chances during the last few days would have been none too rosy, the aerodrome having been covered with snow to a depth of several inches with a considerable amount of ground mist.—R. O. L.

The Hampshire Aeroplane Club.

Report for week ending Jan. 21.

Total flying time 14 hrs. 20 mins. Instruction flying, 8 hrs. 45 mins. Passenger flying 1 hr. 25 mins. Solo flying 3 hrs. 10 mins. Test flights 1 hr.

The following members had instruction: Lieut. Heinemann, R.N., 3 hrs. 40 mins., Señor de la Cierva 2 hrs. 15 mins., Lieut. Cadell, R.N., 40 mins., the Hon. H. R. Grosvenor 30 mins., Mr. Dobson 35 mins., Mr. E. V. Somerset 30 mins., Mr. Stokes 15 mins., Mr. Courtney 15 mins.

The following members had joy-rides: Mrs. C. B. Fry, Mrs. Scott, Mr. Scott, Mr. Molyneux, and Dr. Roberts.

The soloists were Mr. O. E. Simmonds 1 hr., Mr. S. Fry 35 mins., Mr. Keeping 30 mins., Mr. Nicholson 20 mins., Mr. Rumble 20 mins., Mr. Bowen 15 mins., Señor de la Cierva 5 mins., Lieut. Heinemann, R.N., 5 mins.

On Thursday two more pupils made their first solo flights, viz., Señor de la Cierva and Lieut. Heinemann, R.N., and both were up to the usual high standard of the Hampshire Aeroplane Club!

Señor de la Cierva taught himself to fly 10 years ago and flew solo about three hours in all, since when he has not touched a "joy-stick" till Mr. Thomson has taken him in hand. After 2½ hrs. dual, however, Señor de la Cierva felt as safe as if he were in his Auto-giro—and was sent solo.

Mr. Simmonds, now that he has his "A" licence, is putting in good work carrying passengers, and during the week he gave Dr. Roberts an hour's joy-riding.

COMMERCIAL AERONAUTICS.**The London Terminal Aerodrome.****ANALYSIS OF FIGURES FOR THE PAST WEEK.**

Trips per Day.—Monday, 10; Tuesday, 5; Wednesday, 10; Thursday, 11; Friday, 0; Saturday, 9; Sunday, 1.

IMPERIAL AIRWAYS LTD.:

London—Paris; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam; Cairo—Karachi: Machines 18, passengers 90, freight 7 tons.

AIR UNION:

Paris—London: Machines 12, passengers 16, freight 1½ tons.

R.I.M.:

Amsterdam—Rotterdam—London: Machines 8, passengers 10, freight 1½ tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 8, passengers 6.

PRIVATE:

Machines 0, passengers 0.

Total number of trips by British Machines, 18, carrying 90 passengers. Foreign Machines, 28, carrying 32 passengers.

Comparative Figures:

Week ending Jan. 23:

Machines, 46; Passengers, 122; Crews, 76; Total personnel, 198.

Corresponding week, 1926:

Machines, 53; Passengers, 112; Crews, 61; Total personnel, 173.

Corresponding week, 1925:

Machines, 41; Passengers, 60; Crews, 54; Total personnel, 114.

Corresponding week, 1924:

Machines, 40; Passengers, 62; Crews, 62; Total personnel, 124.

Corresponding week, 1923:

Machines, 63; Passengers, 131; Crews, 123; Total personnel, 254.

Corresponding week, 1922:

Machines, 13; Passengers, 30; Crews, 20; Total personnel, 50.

Corresponding week, 1921:

Machines, 15; Passengers, 5; Crews, 17; Total personnel, 22.

Croydon Notes.

Croydon Aerodrome last week, and especially on Saturday and Sunday, was rather like "Beyores gloomy place, rather boggy and sad" (vide Winnie the Pooh). On Friday there was snow and again on Saturday, when about mid-day flakes each about the size of a penny were falling. In the middle of this Mr. McIntosh, in a Handley Page W.10, left for Paris. He must have got just about the worst of the weather for that day, as he was forced down and did not complete the trip until the next day.

The Hercules pilots who took the machines as far as Cairo have now returned. Mr. Barnard told one that they had a very rough trip. The Lady Maud Hoare was the least affected of the whole lot by the conditions.

One gathers that Imperial Airways Ltd. have considered the question of a revised type of De Havilland Hercules for the Continental service. Such a machine would carry much less petrol than the Eastern type and several more passengers. With its high speed and immunity from forced landings it should be an extremely good machine and should shorten the air route between London and Paris considerably.

The fact that the number of passengers carried during the last week was equal to the highest number carried in the height of the summer in 1919 and the average number for the height of the summer in 1920, really shows that there is some progress being made in commercial air transport.

This is due to several factors. Firstly, the machines are better and more reliable. Secondly, the pilots are more experienced and have profited by experience. Thirdly, radio direction-finding is being brought to an exact science as also is meteorology. Also everybody, even including the Air Ministry, is out to make Civil Aviation a practical and financial success.

The aerodrome is now beginning to abound with game, such as hares and partridges. So all sorts of cunning devices pertaining to *la chasse* are utilised by the occupants of the aerodrome to make these creatures feel thoroughly at home.

According to the daily papers the partridges dodge the giant Argosy and Napier H.P. air liners. Presumably they hold in contempt such foreign devices as Goliaths, Fokkers, Junkerses, etc. Evidently they are ordinary stolid English partridges and not "Frenchmen" of the red-legged variety.

Over at A.D.C. Aircraft Mr. Perry has been flying a D.H.9 Nimbus on test during the week.

The Cirrus Mk. II is now well in production. One has had an opportunity of examining in practice the workmanship of A.D.C. Aircraft Ltd. and one is as certain as ever that it attains a very high standard indeed.—G. D.

GERMAN CIVIL FLYING DURING 1926.

Statistics, showing the operations of the Deutsche Luft-hansa A.G. during 1926 have just been issued.

This company was formed by the amalgamation of the Aero Lloyd and Junkers transport companies, and began operations on April 1, 1926. It controls the whole of the network of air lines that intersect Germany and operates in

conjunction with a number of foreign companies outside Germany.

For the nine months of 1926 the Lufthansa carried 56,268 passengers, 384 metric tons of baggage, 258½ metric tons of freight, and 302 metric tons of postal matter and newspapers. These figures represent a 50.3 per cent. increase of passengers, 115 per cent. increase in baggage, and freight carried, and 86.4 per cent. in postal matter carried, over the figures of 1925.

The total distance covered during the period under review was 6,141,479 kms. (about 3,816,700 miles), as compared with 4,949,661 kms. (about 3,073,740 miles) covered by the two old companies during the whole of 1925.

The total length of the network of airways was increased during 1926 from 17,574 kms. (10,813 miles), to 20,408 kms. (12,673 miles).

MORE SHELL MUNIFICENCE.

It has been announced in *The Cape Times* that the Shell Company of South Africa has, subject to certain conditions, offered a D.H. Moth to the Aero Club of South Africa.

This offer is the outcome of the efforts of Major A. Miller, D.S.O., O.B.E., and Lieut.-Col. W. D. Beatty, C.B.E., A.F.C., Chairman and Vice-Chairman respectively, of the Aero Club to stimulate interest in aviation in the Union.

The South African Government was approached with a view to enlisting its support for the formation of a flying Club, but although its attitude was sympathetic, no help was promised.

Sir William Hay, a Vice-President of the Aero Club, and a member of the late Imperial Conference, during his visit to England, went fully into the question of the Light Aeroplane Club movement, not only in Great Britain but also in Australia, and a full statement has been forwarded to the South African Government.

In the meantime Capt. C. T. Black, one of the honorary secretaries of the club, went into the question of possible private support.

As a direct result of this, the Club received a communication from Mr. Stewart Cartwright, the representative of the Shell Company of South Africa, conveying the news that his directors were prepared to present to the Club a machine of the type required, provided they could be "absolutely assured that the Club and its activities had the full approval and support of the Government of the Union of South Africa."

Prior to this offer the Club had received promises of donations amounting to £200 from among its own limited membership.

Every effort is now being made to open a Flying Club in Cape Town, and with the inducement now held out, this should not be difficult.

The Shell organisation, by very liberal prizes and gifts, has from the very beginning of aviation helped on its development in all countries in which the company operates, and its generosity in the case of South Africa is another instance of the manner in which it has carried out that policy.

A CANADIAN AIR MAIL SCHEME.

The Canadian Department of Defence is asking the Premiers of the Provinces and the Mayors of the leading cities for information about suitable sites for air harbours.

It is known that the Government is interesting itself in the possibility of air mail routes in the Dominion and although no definite date has been decided on when such services may materialise, neither has financial provision for such services been made, the Department is of the opinion that all necessary information should be available when the time for action arrives.

It is believed that the first scheme will be the organisation of air mail routes from the Atlantic seaboard and the lower St. Lawrence to Montreal, with possible extensions to Toronto and Winnipeg.

In this connection it has been announced by the Office of the High Commissioner for Canada, that a private company known as the Canadian Trans-Continental Airways Co., has just been registered in Quebec.

This company plans to operate a regular flying-boat service between Chicoutimi and Toronto, calling at Rivière du Loup, Quebec, Three Rivers, Montreal, and Ottawa en route.

The company is now negotiating with a certain European

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aircraft manufacturer, the name of whom is not disclosed, regarding the delivery of necessary equipment. The service is planned to begin operations in June, 1927.

A NEW CANADIAN AIR SERVICE.

A new Canadian Company, known as the Western Canadian Airways Ltd., of which Mr. James A. Richardson, of the Winnipeg Grain Exchange, is President, is opening up a transportation service between Winnipeg and the mining fields east of Lake Winnipeg in Manitoba and to the adjacent mining country in Ontario.

Headquarters have been established at Sioux Lookout and the first machine, a Fokker Universal, fitted with a 200 h.p. Wright Whirlwind engine, has been purchased. This machine arrived at Sioux Lookout on Dec. 25, having been flown from Peterborough, N.J., a distance of 1,700 miles, by Capt. H. A. Oaks, late of Patricia Airways.

Air communication has been established between Sioux Lookout and Hudson and the mining areas of Red Lake, Pine Ridge, Woman Lake and Narrow Lake.

It is rumoured that another company, to be known as the Canadian Air Express, is all about to operate in the same area, but little is known except that Stinson Detroit biplanes (Wright Whirlwind engines) are to be used.

A SOUTH AFRICAN AIR MAIL SCHEME.

It is reported that negotiations have been opened by the Union Government of South Africa with the object of opening up an air mail service which will shorten the journey for mail matter between England and the Cape by four days.

It is understood that it is the intention of the Government to make Walvis Bay, perhaps better known as Walfisch Bay, the terminus for the service, to which mails would be carried from all parts of the Union. Walvis Bay is only twelve hours' journey by air from Johannesburg and Pretoria, and is three days nearer England than Cape Town.

The Union Castle Line, which holds the mail-carrying contract, does not at present use Walvis Bay as a port of call, and were it called upon to do so, it would require an additional subsidy because the call would involve considerable expense. The question is now being discussed by the company and the Union Government.

It will be remembered that the South African Government and the S.A.A.F. operated an experimental air mail service

between Durban and Cape Town, from February to June, 1925. Although this service from a flying point of view was a success, the amount of support it received from the public was very poor.

Later the Union Government asked for bids to open up a mail route over a similar route but the amount of subsidy offered was considered by possible contractors to be insufficient. The German Junkers Company, through local representation, were keenly interested, and, but for the financial troubles through which the parent company was passing at the time, might have operated an experimental service in order to gain a footing in the Union.

Early this year it was reported that Major Miller, a member of the South African Civil Aviation Board, who is at present in America, had obtained, partly in England and partly in America, the necessary financial support, amounting to £35,000, for the formation of a company to open up an air route between Johannesburg and Durban.

Once again the name Junkers is associated with the scheme and it is feared in some quarters that if the company materialises, this firm may secure the contract.

NEW COMPANY.

SUPERMARINE AVIATION WORKS LTD.—The Supermarine Aviation Works Limited was registered on Jan. 20 as a "private" company with a nominal capital of £300,000 in £1 shares (50,000 7½ per cent cumulative preference, 50,000 preferred ordinary, and 200,000 ordinary). The objects are to take over the business of designers, manufacturers and sellers of flying-boats, amphibian flying-boats, seaplanes, aeroplanes, and other aircraft carried on by the Supermarine Aviation Works Ltd., at Woolston, Southampton, together with the whole of the real and personal property and assets used in connection therewith, and to adopt an agreement with the said old company, and its liquidator, to acquire, carry on and develop aerodromes and air stations, etc.

The subscribers (each with one share) are: Squadron Commander J. Bird, R.N. (Ret.), Fairlea, The Avenue, Basset, Southampton. M. J. Jarvis, Castleacre, Twyford, Berks, solicitor.

The first directors (to number not less than two nor more than seven) are Commander J. Bird (permanent director and chairman) and others to be appointed by the subscribers. Qualification: One share. Remuneration: As fixed by the Company. Solicitors: M. J. Jarvis, 4, Finsbury Square, E.C.2. The registered office is at Woolston, Southampton.

SATISFACTION.

HANDLEY PAGE LTD.—Satisfaction to the further extent of £55,000 (balance outstanding), on Dec. 24, of charge dated July 21, 1926, securing £120,000.

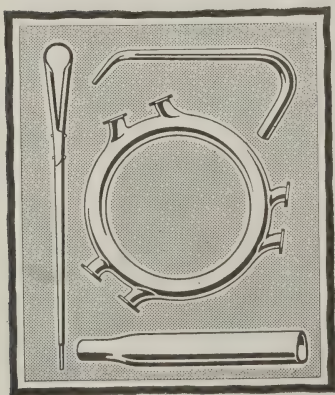
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CENTRAL JOINERY CO. LTD. (formerly Central Aircraft Co. Ltd.).—S. E. Smith, O.B.E., P.S.A.A., of 4, Broad Street Place, E.C.2, was appointed Receiver on Jan. 11, 1927, under powers contained in debentures dated Jan. 30, 1926.

PERSONAL NOTICES.

DEATHS.

BREWERTON.—On Jan. 18, at Malta, as the result of a flying accident, Flt. Lt. Cyril Fraser Brewerton, D.S.C., R.A.F.

Flt. Lt. Brewerton joined the R.N.A.S. on the outbreak of War and served with distinction. He was awarded the D.S.C. in 1918. The Admiralty Gazette of Apr. 17, 1918, in announcing the award of the decoration, states:—"Act. Flt. Cdr. C. F. Brewerton. For skill and courage displayed in carrying out many long and valuable photographic reconnaissances over enemy territory, particularly over Ostende on Feb. 21, 1918."

After the Armistice Mr. Brewerton was posted to No. 28 Sqdn., Peshawar, India. He was promoted to the rank of Flt. Lt. in January, 1923, and appointed to command No. 423 (Fleet Spotter) Flight in H.M.S. Eagle in Jan. 1924.

CHAFE.—On Jan. 18, at Malta, as the result of a flying accident, Edwin Chafe, Lt., R.N., and Flg. Off., R.A.F.

Mr. Chafe was detached from the Navy for duty with the R.A.F. in November, 1925, and underwent a course of flying instruction at the R.A.F. Training Base, Leuchars.

MARRIAGES.

ALLCROFT—GLOVER.—On Jan. 19, at St. Columba's Church, Pont Street, John D. Allcroft, R.A.F., son of Mrs. M. H. Allcroft and the late John D. Allcroft, to Agnes Glover, youngest daughter of Mrs. Glover and the late Rev. James Glover, Sydney, N.S.W.

ANDERSON—PHILLIPS-JONES.—On Jan. 19, Flt. Lt. G. Anderson, R.A.F., only son of Mr. and Mrs. R. Bruce Anderson, of 71, Lansdowne Road, W.11, and 5, Victoria Street, S.W.1, to Joyce Christian Mary, youngest daughter of Mr. and Mrs. Phillips-Jones, of Spidhurst House, Spidhurst, Sussex.

FORTHCOMING MARRIAGES.

BOUCHIER—SHERWOOD.—An engagement is announced between Flt. Lt. C. A. Bouchier, D.F.C., R.A.F., Northolt, and Miss Dorothy G. Sherwood, younger daughter of Mr. and Mrs. W. A. Sherwood, of Haslemere, Park Road, Hampton Hill, Middlesex.

REID—ASHLEY.—A marriage has been arranged between Capt. A. S. C. Reid, D.F.C., M.P., and Mary, younger daughter of Col. the Right Hon. Wilfred Ashley, M.P.

BIRTH.

GRICE.—On Jan. 14, at Winchester, to Sheila (*née* Langdon), wife of Flt. Lt. R. Grice, D.F.C., R.A.F.—a daughter.



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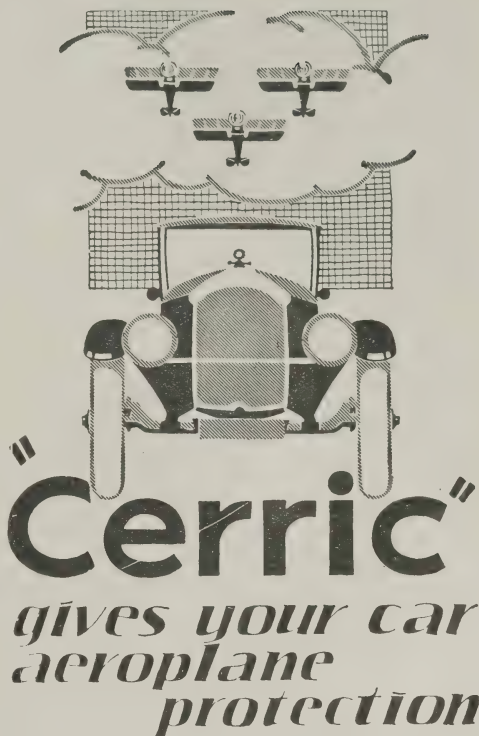
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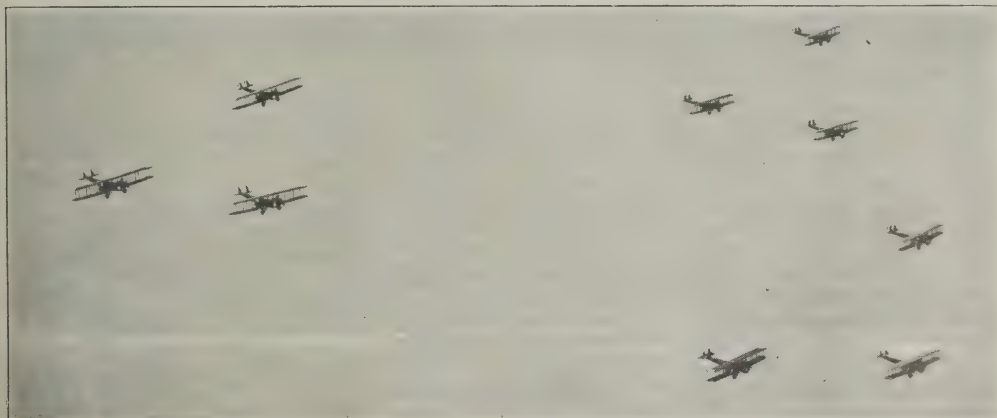
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ON LONG-DISTANCE FLYING.

Considerable attention has been given of late in the daily news-sheets to the fact that Captain Pelletier Doisy of the French *Service d'Aviation Militaire* has been awarded the Lafayette Trophy as the World's Champion Aviator. These statements have appeared, quite naturally, without any indication as to the competence of the authority which thus decides the championship or as to the qualification of the champion, just as the daily papers habitually class every unusual performance as a World's Record.

The authority in question is the *Ligue Internationale des Aviateurs*, an association recently founded in Paris by Mr. Clifford B. Harmon, one of the pioneers of aviation in the United States. Some months ago the origin and intentions of this League were discussed at length in *THE AEROPLANE*. At that time one made clear the fact that while this League had, and still has, every intention of being International, in that branch Posts have been established in Italy, Holland and Belgium, it cannot as yet claim to be truly international, because the number of French adherents to the League greatly outnumber those of all other nationalities. The *Ligue* is in fact at the moment as predominantly French as was the notorious *Commission Aéronautique Inter-Alliée* which for years did its best to crush the development of German aviation. Consequently one would hardly expect the League to elect any one other than a French pilot as the World's Champion Aviator.

As a matter of fact, M. Roger Labric, writing in that excellent weekly paper, *Aéropole*, of Paris, pulls the leg of the *Ligue Internationale des Aviateurs*, in quite a good-humoured way, about having taken upon itself to say who is the Champion Aviator in the World.

M. Labric points out that there is no formula which can possibly designate the best of the best among the pilots most in the public eye in all nations. He says that the great exploits of 1926, and earlier, differ so much from one another

that it is difficult to say exactly who should be considered the most brilliant, the most regular, the most adroit, and the most scientific of all the World's pilots. According to him it would be necessary to take all the World's pilots and put the whole lot through a series of identical tests and then to establish classification on points.

A World's Championship, he says, is not a joke, and it is not because a dozen "pontiffs" of the *Fédération Aéronautique Internationale*, or other body, "with their sterner well stuck in armchairs" give their opinions on pieces of paper that we shall salute according to their choice the true World's Champion.

In its subsequent issue *Aéropole* states that the *Fédération Aéronautique Internationale* has refused to accept the designation Champion of the World for the laureate of the Lafayette Trophy. According to the F.A.I. such a designation could only be accorded after a test regularly organised and under similar rules for all countries.—With which ruling everybody will agree.

In this particular instance, seeing that the Lafayette Trophy has been awarded for performances limited to the year 1926, it would be difficult to dispute the right of a French pilot to the title of the World's Champion Aviator if any such title were recognised by the World's Aviators. If the election had been concerned with the year 1925, undoubtedly the Trophy should have gone to Colonel the Marchese de Pinedo for his cruise in the Far East of 33,650 miles in 350 hours' flying time. But during 1926 there were so many extraordinarily fine flights, particularly by French aviators, that several people are entitled to dispute with Captain Pelletier Doisy the claim to the best performances of the year.

Presumably the claims of Captain Pelletier Doisy rest on his flight from Paris to Peking across Siberia when he covered the total distance of 6,520 miles in 63 hours' flying



THE JOURNEY'S END.—The arrival of Sir Samuel and the Lady Maud Hoare and Staff at Delhi on Jan. 8, in the De Havilland Hercules (three Bristol Jupiter engines).

time between June 11 and June 18, 1926; and on his flight round the Mediterranean on August 24 and 25, when he flew from Paris to Rome, Tunis, Casablanca and back to Paris, covering 6,400 kilometres in 41 hours 45 minutes from start to finish.

Nevertheless a reasonable claim might have been put in on behalf of the flights made by Mr. Alan Cobham from London to Cape Town and back, when he covered 16,130 miles in 1,600 hours' flying time between November 16, 1925, and March 13, 1926, and from London to Melbourne and back, when he covered 28,000 miles between June 30 and October 1, 1926. The distances were very much greater than those covered by Captain Pelletier Doisy, but presumably those who voted for the award of the Lafayette Trophy considered that Captain Doisy's flights were of greater merit because they represent greater continuous effort without so many rests between stages or delays on the way.

NON-STOP RECORDS.

One's personal inclination in a matter of this kind would be rather to award such a Trophy to the pilot who had put up the finest individual straightaway performance, and under that heading one would have preferred to award the Trophy for the longest non-stop flight in a straight line.

There is something about a long non-stop performance of any kind which appeals with particular strength to the human mind, whether it be done by bicycle, motor-car, train or aeroplane. The mere fact of keeping on keeping on has a curious fascination—especially for the spectators. And the French have always been particularly fond of feats of endurance of this nature.

In the days before there were any motor-cars the French excelled in such performances on bicycles. We in England had a number of crack long-distance men, notable among whom were Mr. Frank Shorland, Mr. G. P. Mills, and Mr. S. F. Edge, all later successful in the motor trade, and Montague Holbein, the Channel swimmer, who were given to doing twenty-four hour rides and to putting up records from Land's End to John o' Groats, and London to Edinburgh, and such places. But the French beat us badly at our own game when they started such competitions as the Bordeaux-Paris race and the Paris-Brest and back. Therefore history is merely repeating itself when French aviators start putting up long distance non-stop flying records.

It is worth while here to place on record the best flights of this kind which were made during 1926.

First was the flight of the brothers Arrachart on June 26 and 27, when they flew from Paris to Basra, 4,305 kilometres, in 26 hours 30 minutes. Then came, on July 14 and 15, the flight by Captain Girier and Lieut. Dordilly,

from Paris to Omsk, 4,716 kilometres, in 27 hours. This again was beaten on August 31 and September 1 by Lieut. Challe and Captain Weiser, when they flew from Paris to Bandar Abbas, 5,174 kilometres, in 27 hours 15 minutes. But the record of to-day stands to the credit of M. Coste and Captain Rignot who, on October 28 and 29, flew from Paris to Jask on the Persian Gulf, 5,450 kilometres, in 32 hours.

On that feat alone one would feel inclined to vote for M. Coste as the World's Champion Aviator. But M. Coste was not satisfied merely with doing that one non-stop flight.

He could in fact have gone on to Karachi, for when he landed at Jask he still had petrol for five hours in his tanks. But the weather was bad and he was faced with flying and landing in the dark, having already flown through one night, so he wisely returned to Jask.

After refuelling there and waiting a day he flew on to Karachi and thereafter flew by way of Patna to Calcutta, calling on his return journey at Delhi, Karachi, Basra, Aleppo, Athens, and Rome, finally returning to Paris, having covered in all more than 20,000 kilometres, or roughly 13,000 miles.

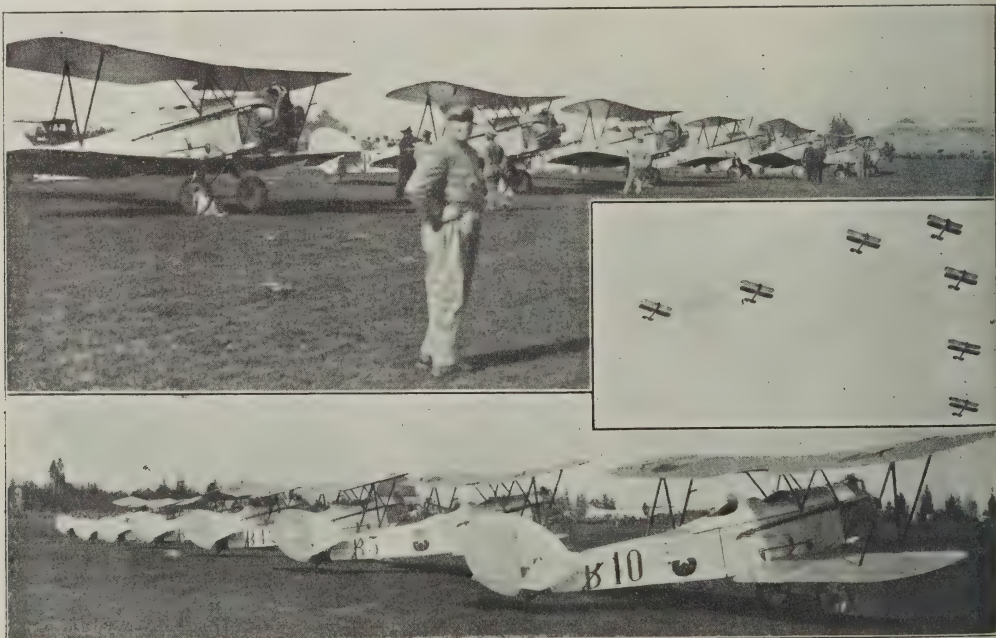
Such a performance in one's own estimation, for what it is worth, is considerably better than those of Captain Pelletier Doisy. And for that reason one would have voted for M. Coste as at any rate the Champion French Aviator.

On the other hand, if one were taking all sorts of other circumstances, a strong claim might be put in for Lieut. *de Vaisseau* Bernard, who flew round most of Northern Africa and across the Continent to Madagascar, returning to Paris by way of the Nile and the Mediterranean. It is true that he finished his flight in the early days of 1927, but the bulk of it was done in 1926.

Also for sheer pluck under adverse conditions many would feel inclined to vote for Captain Orlinski, of the Polish Army Air Service, who flew from Warsaw to Tokyo and back, doing most of the return journey on a damaged machine.

There is also the flight by Lieut. Botved and Serjeant Olsen, of the Danish Army, from Copenhagen to Tokyo and back, covering 18,000 miles between March 16 and June 23.

Possibly a difficulty might arise in awarding a personal Trophy such as that dedicated to the Lafayette *escadrille* for any of these non-stop flights or long-distance tours owing to the fact that both the occupants of the machines were pilots and so presumably one man did not handle the machine throughout the flight. Therefore it might be unfair to award the Trophy to the chief pilot when his companion took just as much risk, endured just as much fatigue, and probably did quite a fair share of the actual piloting.



BRISTOLS ABROAD.—A batch of Bristol School biplanes (100 h.p. Bristol Lucifer engines) at El Bosque aerodrome, Santiago de Chile. They are giving excellent service in the Chilean Army Air Service and the standard of proficiency attained by pupils on these machines is shown in the excellent formation picture taken during an Air Display at El Bosque last summer.

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Therefore one presumes that the Lafayette Trophy was awarded to Captain Pelletier Doisy rather because he has been the hero of so many notable flights in which he has had different companions with him to divide the glory. So perhaps on the whole he is entitled to be considered the Champion French Aviator, although others have excelled each of his individual performances.

VALUE FOR MONEY.

The curious thing is that no really great non-stop flights have been made by British pilots, at any rate since Mr. Bert Hinkler flew from London to Turin non-stop on the Baby Avro with the little Green engine in 1920. For such flights are in fact not only the best form of advertisement for the pilots, engines and aeroplanes of the country concerned, but they are in fact the cheapest.

A flight round the World, such as that done by the U.S. Army Air Service, or vast circular tours like those of the Marchese de Pinedo and Sir Alan Cobham, cost enormous sums in organisation, in the laying of petrol and oil dumps, in the transport of spare parts and engines, and in general personal expenses. A non-stop flight costs nothing beyond the construction of the machine and the filling of it with petrol. All the pilot has to do is push off, stick to a compass course, and hope for the best.

There is of course the cost of flying the machine back again, but that can be done by flying from one existing aerodrome to another, and costs little more than the price of the petrol consumed.

One suggests, therefore, that it is quite time that British aviators made an attempt to beat the French non-stop records. We certainly have pilots in this country who are capable of flying as long and as straight. And a British pilot would start with the initial advantage of flying some 250 miles before getting as far as Paris, which is the French starting point. Therefore he could break all existing records by landing on one of the many aerodromes which already exist, whereas anybody starting further East would be in danger of getting to comparatively uncivilised country where there are no aerodromes on which to land.

THE TRADE OR THE R.A.F.?

The question arises as to whether such a flight should be done by private or commercial enterprise, or whether it should be done by the Royal Air Force for the honour and glory of British Aviation. So far as one can gather practically all the big flights mentioned hereinbefore have been done by French aviators on the active list of the French Army. So one imagines that the expenses of these flights, such as they were, have been paid by the French Government. Consequently there seems no reason why the Air Ministry should not put up a few machines for similar flights.

The Service flights already done by the R.A.F. have been well worth the money they have cost. They have raised the prestige of the Air Force all over the World. They have advertised British Aircraft. They have shown the Flag in

out-of-the-way places. And they have helped to make the British Public and its Press air-minded.

As a matter of fact, they have in reality cost nothing at all. The officers and men would be drawing their Service pay in any case. The machines used no more petrol than they would have used in ordinary Service flying between one aerodrome and another. And the only additional expense has been perhaps the fitting of special tanks and a little additional equipment, which anyhow is standard material.

For that reason the Air Force can actually afford to send a few machines on such long-distance jaunts without an expense whatever, whereas if a Trade firm engaged in such an enterprise it would have to pay for the building of a machine and for the pay of a pilot and everything else. Therefore one would very much like to see a few attempts made by Air Force pilots on the World's Non-Stop Record.

One does not put this up to the Air Ministry as an original suggestion. There is a habit, more especially in political journalism, of discovering something that is going to happen, advocating with all the power of the Press that it should be done, and then claiming, after it has happened, that one was either the prime instigator, or at any rate the most powerful influence, in causing it to happen. And one does not wish to be accused of such presumption.

For that reason, in case the Air Council may have already in mind some scheme for great non-stop flights, as for example from England to Egypt, or to the Cape, or to Iraq, or even England to India direct, one does not wish to claim having had any hand in such attempts. One will merely say that everybody will be very pleased if they do happen.—

C. G. G.

ON AIRCRAFT IN THE WEST INDIES.

For a great many years there has been talk of running air lines in the West Indies, either in order to link up the islands with North and South America, or to give an improved passenger and mail service between the islands. More recently there has been some mention in the non-technical papers of a proposal to run an airship service between England and Jamaica by way of Bermuda. Consequently a resident in the West Indies, who was a pilot in the R.A.F. during the War and has maintained his keen interest in aviation while building up for himself an important position with one of the leading firms in the West Indies, writes drawing attention to certain points which might not occur at first sight to the ordinary stay-at-home Englishman.

He starts with the correct assumption that there is no use in starting an air service by means of a subsidy if there is no chance that the said air line will be able to support itself without a subsidy within a reasonable time. For this reason he urges that the Government would be committing a colossal blunder if they were to decide to assist a service between the various islands.

As a resident he says that even under the most favourable conditions such a service could not take in its gross receipts enough to pay its pilots only. The reason for this is that the various islands trade direct with Europe and the United



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States, and, as each island grows practically the same produce, there is very little trade between one island and another. Consequently there is very little mail matter passing between the islands, and mail matter would necessarily be the chief source of revenue for an air transport company.

He remarks that it might be very pleasant for the Governor of the Leeward Islands to be able to travel among the islands by aeroplane, but that if every mile of air travel meant an expense of several pounds to the Imperial Government, and the West Indian Colonies, which presumably would have to contribute towards the subsidy, there would probably be trouble.

On this point one might suggest that in the interests of efficient administration, the taxpayers of the West Indies might very well provide the Governor with a good flying-boat, such as, say, the Supermarine Southampton, in which to make frequent tours of inspection. It would probably cost less than a steam yacht and would increase the Governor's mobility many times over.

AN AIR FORCE BASE.

Furthermore one would suggest that in view of future possibilities, particularly in the obvious task of having to support the United States in the defence of the Panama Canal against Japanese aggression, the Royal Air Force really ought to have a base in the West Indies. We have some kind of a small naval station somewhere in that area, but we have no kind of Air Force base at all.

Should such a base be established before the outbreak of war, then the Governor could very well make his tours in an R.A.F. flying-boat much as Governors of other Colonies tour about on ships belonging to the British Navy.

The correspondent quoted hereinbefore points out further, that despite the practical objections to inter-island air-lines,

THE AERONAUTICAL ENGINEERS' HOUSE DINNER.

The first House Dinner of the Institution of Aeronautical Engineers was held on the evening of Jan. 28 at the Engineers' Club. Despite the ravages of influenza, which seems to be abnormally prevalent in aeronautical circles, between thirty and forty members and guests sat down to dine. Mr. Bramson occupied the chair as deputy for Mr. F. R. Simms, who was unfortunately unwell.

MAJOR HEMMING opened a discussion on Aeronautical Engineering, dealing particularly with the problems presented by the needs of Aerial Survey. Aerial Survey during the past few years had been mainly of the nature of propaganda. Air methods of survey was now at the beginning of a new phase—that of an established business.

During the propaganda stage they had perforce to use such equipment as was available. In the future their equipment must be designed for the work, and it was for the aeronautical engineer to provide that equipment. Air surveys needed aircraft, instruments, and personnel.

They wanted a machine with a "pusher" view. They also wanted a machine immune from forced landings, as most of their work was over country where safe landing was impossible. Their normal working height was 10,000 ft. and would go higher. The cruising speed should be high—100 m.p.h. or so—and the load to be carried could be taken at 1,000 lbs. plus five hours' fuel. It was therefore up to the aeronautical engineer to determine how best to meet these needs.

As to instruments, their chief need at the moment was a true height-from-the-ground indicator. The accuracy of their photography depended on the accuracy of the flying. A good pilot kept to plus or minus 30 ft. at 10,000 ft., but they wanted an instrument that would give better accuracy than that. The problem of keeping on a straight line was not difficult given the required view.

The camera had developed very satisfactorily. It was now fully automatic, and they hoped that when they had tried it out in practice they would find it possible to dispense with the observer altogether.

So far as personnel went the pilot was the chief person. The survey pilot should be an accurate flier with a good knowledge of photography and survey work, including ground methods, and he must be capable of maintaining his machine and engine in the field. He did not know whether they would take pilots and teach them surveying, or teach surveyors piloting, but if they were suddenly called upon to carry out a really large survey they would have great difficulty in finding the required men.

The British air line pilot was of the type they needed, and he suggested that such pilots might well give survey work their attention, so that when tried of London—Paris trips they would be ready to take on survey work.

CAPT. TYMMS said that the survey machine required two engines—possibly three, if the third could be kept out of the nose. A view down and forward at 45 degrees was required for both pilot and observer, and you could not have that and a nose engine. It must have interchangeable undercarriages so that it could work from land, water, snow and ice, and must have a quick get-off from all these surfaces. Its ceiling should be at least 16,000 ft. and the climb to working height should be as rapid as possible.

CAPT. F. L. BARNES thought the air line pilots might well conclude that air survey was a thing to be avoided. They had twin-engined machines that would not fly on one engine, and triple-engined ones that might fly on two, but they would want three-engined ones to fly on one for survey.

He wondered the surveyors had not tried gyro-controls. These worked very well and would relieve the pilot of the responsibility for keeping an accurate course. He had seen a height indicator which depended on reaction to the earth electrical capacity. It worked and was being developed.

there is a wonderful field of activity for aircraft awaiting development in the Caribbean Sea.

Each year sees a constant increase in the mail traffic between North and South America. He suggests that it should be possible to operate at a profit a service run with three-engined flying-boats between Buenos Aires and New York, calling at about ten ports en route. The midway port on the route would be the British Island of Trinidad, where the North and South service might well be joined by another line running from Panama along the Northern coast to South America, picking up mail matter from Colombia and Venezuela, and extending beyond Trinidad to the Guianas.

He suggests that just as British sailing and steamship lines were pioneers in linking North and South America, British air lines ought to be the pioneers of the new method of transport along that route. He says that Trinidad would be the ideal junction for air lines between South, Central and North America, and that the Island is fortunate in having an oil industry which could easily supply an air service with fuel.

The fastest steamships between Buenos Aires, Rio and New York take approximately eighteen days to do the trip, whereas, flying by day only, it should be possible to do the journey in nine or ten days by air.

Certainly Trinidad seems to be geographically the strategic key to the control of the West Indies and the Caribbean by air. And, curiously enough, although Trinidad is so little known in this country, apart from the fact that it appears to supply most of the asphalt with which our foolish road authorities are making motoring so devastatingly dangerous, one happens to know of three quite experienced pilots in the country, whose knowledge of aviation and knowledge of local conditions are available to anybody who may be interested in air transport propositions in that area.—C. G. G.

MAJOR BRACKLEY did not feel up to discussing air survey problems. They had enough of their own in Commercial Transport. Their worst complaint against aeroplanes was the noise. How could that be abolished without cutting the pay load? Commercial flying had developed so far because of the work of the pilots. They were relying too much on the human element and the engineer should remedy this state of affairs.

FLY. LT. REID said the weakness of automatic controls was that they did not possess the pilot's foresight. They could only correct after a disturbance and not forestall the disturbance as the pilot often did. He thought it was probably possible to design a gyro azimuth indicator which could be photographed on each plate and so give an accurate tilt indication.

CAPT. SAYERS said that the engineer's job was to do for one dollar what any damn fool could do for two. The aeronautical engineer was handicapped because he could rarely get an assurance that the required dollar was forthcoming. The surveyor could have his "pusher" if he really wanted it. For the same load and performance it would cost more than a tractor—were they ready to pay for it? In the same way they could get a twin-engined machine that would fly on one engine. This was the nearest to absolute reliability that could be produced practically and it again would be more expensive than a three-engined type which would only fly on at least two. They could have that if they would pay for it.

CAPT. LAMPLUGH said that personnel was of the first importance. It was the quality of our marine personnel that gave us sea supremacy. Air survey work was mainly carried on where it could not be seen. It might therefore easily be overlooked by the general public, but it was likely in the future to become a very important business.

CAPT. F. L. M. BOOTHBY said that British engineers had nothing to be ashamed of, but were being let down by those who ought to keep them busy. Being an airship man he felt that many of the Air Surveyor's problems could be solved by the airship. They would doubtless smile at his optimism, but he was content to leave the matter to time, and confident that in ten years the airship would be in regular use for this purpose.

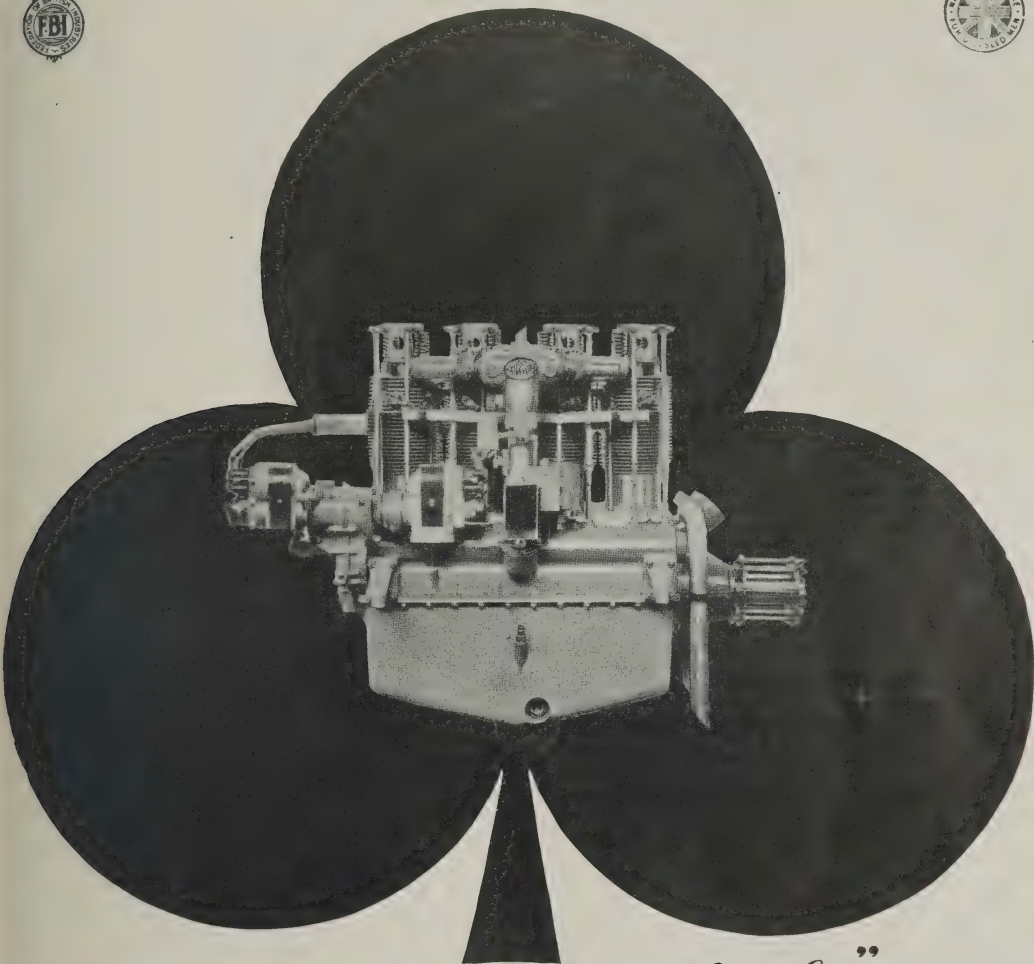
MAJOR F. A. DE V. ROBERTSON supported Capt. Boothby. If they meant to survey say the Himalayas from the air they must use a craft that never had to land involuntarily, and the airship alone answered the description. If anyone could produce an airship to get to the required height, keep the required speed, and have the required manoeuvrability to maintain a straight course.—C. G. G.]

CAPT. TYMMS agreed that eventually it was hoped to make the pilot carry out surveys single-handed. Survey work differed from bombing in that in bombing your objective was a point, and it didn't much matter how you got to it. In any case, that point was always out of sight when you dropped your egg.

In survey you had to fly accurately over one definite line. A gyro rudder control would bring you back to a course after disturbance. You would be flying on a line parallel to the original one, but not on the same line. To keep the line you must work on ground marks, and that called for a specially good view.

MAJOR HEMMING said that the main trouble they had to face was that they got a lot of small contracts. If they could get big contracts costs would come down. But they could afford to pay high prices for the right type of equipment, for it was not the cost of machines that mattered. He was quite satisfied that Capt. Sayers was right in saying that they could get two-engined machines to fly on one engine, and they were ready to pay for them if they met their other needs. He found it difficult to agree with Capt. Boothby concerning airships. Speed was essential, and speed was not the airship's strong point.

After a vote of thanks to Mr. Bramson the meeting dissolved in a series of smaller meetings of an even less formal but equally harmonious nature.—W. H. S.



The "Ace of Clubs."

LONDON Aeroplane Club, LANCASHIRE Aero Club, MIDLAND Aero Club,
NEWCASTLE-ON-TYNE Aero Club, YORKSHIRE Aeroplane Club, HAMPSHIRE
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE KING'S CUP AIR RACE.

Preliminary Announcement:—The Royal Aero Club has submitted the conditions for this year's Race to His Majesty the King, who has been graciously pleased to express his approval.

The Race will be over a course of approximately 525 miles divided into three stages of 175 miles each. Each stage of 175 miles will consist of seven laps of a circuit of 25 miles and compulsory alightings must be made at the end of each seven laps.

A circuit of 25 miles in the vicinity of Bournemouth has been carefully surveyed from the air and has been reported on as satisfactory for the Race.

The Race will be held on August Bank Holiday and will be completed in one day.

Full conditions and details of the course will be issued later. [Although His Majesty has expressed his approval of the conditions, one takes the liberty of suggesting that the Royal Aero Club, has, as usual, done its best to spoil the effect of the race by holding it at the wrong place at the wrong time.

The King's Cup Race, as the only classic event in British Aviation, should be flown when and where it will do the most towards making flying popular. Therefore it should take place near London during the London Season. As arranged it will merely serve to amuse a few seaside Bank Holiday trippers. In any case, people who have to work at aviation all the year round do not want to be compelled to spend the last holiday of the year at their daily job.

Once more the Committee of the Royal Aero Club has given proof of its incompetence, both in its lack of appreciation of the best way of promoting "air-mindedness" and in its lack of understanding of the right place to hold flying meetings. Just because Bournemouth provided a pleasing week-end meeting last year the Committee apparently thinks that it is the only place suitable for a classic flying race.—C. G. G.]

THE SCHNEIDER INTERNATIONAL SEAPLANE CONTEST, 1927.

The Contest for the Schneider International Seaplane Trophy will be held in Italy in 1927 between Sept. 1 and Nov. 15. The exact date and place will be announced later. British entries must be made to the Royal Aero Club, 3, Clifford Street, London, W.1, not later than Wednesday, Feb. 23, 1927. Entries must be accompanied by the Entry Fee £5 and Deposit of £50. The Deposit of £50 is returnable in respect of each machine present at the Contest.

The Committee of the Royal Aero Club will select the three Competitors to represent the British Empire and reserves to itself the right to hold eliminating tests.

GENERAL CONDITIONS FOR 1927.

Navigability and Watertightness Test.—This eliminating test will begin with a navigability test and be followed by a watertightness test. These two tests are intended to establish the seaworthiness of the machine.

Each machine must complete a course of from 5 to 10 nautical miles over the sea, or in a creek, gulf, estuary or bay, as decided by the *Commissaires Sportifs*.

For this test the competitor must taxi over the starting line, then rise and continue the course, during which he must taxi the machine over two distances of half a nautical mile at a minimum speed of 12 knots, the limits of each of these distances being indicated by two buoys.

The remainder of the course will be covered in flight.

The competitor must, however, alight again before completing the course and taxi over the finishing line.

The *Commissaires Sportifs* may allow a competitor who has been unsuccessful in this test to make a second and final attempt.

After having taxied over the finishing line, the machine must be moored immediately to a buoy allotted beforehand, where it must remain afloat for six hours without anyone on board.

Any machine leaving its mooring during this period will be disqualified.

No repairs will be allowed during the navigability and watertightness tests. Except for changing the aircrew, which is allowed, the machine must not undergo any modification between the above tests and the speed contest. It will be stamped to ensure this.

Speed Contest.—The contest will be flown over a distance of 350 kilometres (188.86 nautical miles).

The closed circuit will be about 50 kilometres (26.93 nautical miles).

Competitors may be started all together or at intervals as shall be decided by the *Commissaires Sportifs*.

If competitors are started at intervals the order of starting shall be drawn by lot and the hour of starting fixed by the *Commissaires Sportifs*.

The start may be made either by taxiing over the starting line or by passing over it in flight. The finishing line must be crossed in flight.

The course may, if necessary, be taken over the coast, the controls being on land, care being taken to avoid all arrangements likely to impede competitors. [The meaning of this sentence is obscure. Perhaps the Royal Aero Club will explain it in the next Bulletin concerned with alterations of plans.—C. G. G.]

Alightings and repairs are allowed during the contest.

In the event of unfavourable weather the *Commissaires Sportifs* may postpone the contest as often as they think fit.

THE BRITANNIA TROPHY.

The Royal Aero Club will be pleased to receive particulars of any meritorious performances during the year 1926 for consideration by the Committee when making the award. Particulars should be sent to the Royal Aero Club, 3, Clifford Street, London, W.1, not later than Feb. 7, 1927.

THE D.H. HERCULES AT DELHI.

[BY AN ONLOOKER.]

Bright sun shining from a cloudless blue sky and just a touch of cold north-west wind off the snow-clad Himalayas, the usual conditions of this wonderful winter climate in North-West India, were ready to greet the Hercules on Jan. 8.

The south side of the new cantonments landing ground, where R.A.F. Headquarters keep a couple of aeroplanes in tent hangars during the cold weather season, was thronged with cars, tongas, ekkas, and bicycles of every description.

Earlier, the six miles of road leading north-east to the City of New Delhi, and the further six miles northwards to Delhi itself, were crowded with vehicles, like Epsom on Derby Day. There was a rush for the landing ground when a Bristol Fighter, the advance escort of the Hercules, landed 50 minutes ahead.

Wireless communication had been maintained with the Hercules since leaving Jodhpur, and soon after the final signal "Approaching Delhi" was received, she comes into view from the south-west at about 1,000 ft., and a steady, even "whirr" from the engines and propellers is heard. A wide left-hand turn brings Hercules over the landing ground, facing south again.

"Engines off," and a beautifully judged left-hand gliding turn brings the aeroplane to a perfect approach into wind. The glide becomes slower as the line of white pylons is passed; a steady flattening; then a perfect rendering of the orthodox "wheels first" civil aviation landing, the tail drops down, and all speed seems lost in an incredibly short time. The centre engine is seen to stop, the pilot manoeuvres by the wing engines, and taxis exactly to the position required, without outside handling.

There is a rush forward by the spectators. At first the R.A.F. Landing Party, the Police, and guards of the 20th Lancers and 2nd Battalion the Royal Warwickshire Regt. seem taken aback, but manage to stem the tide. The door of the fuselage opens, the travellers by air between the capitals of England and India have come to their journey's end, and step down on the landing ground, where H.E. the C.-in-C., and the principal civil and military officials of Delhi are waiting to receive them.

The Hercules was baptised on Monday, Jan. 10. At 14.30 H.E. the Viceroy and Lady Irwin, with Sir Samuel and the Lady Maud Hoare, arrived at the landing ground.

After presentation of the captain and crew, Sir Samuel Hoare made a brief speech, in which he invited Lady Irwin to name the Hercules the "City of Delhi." He referred to the unfortunate fact that the uses of aviation so far had been mainly warlike, but he looked forward to the time when civil flying would become a powerful agent of peace and harmony in the world, and he claimed that the Hercules, by her recent journey, had shown herself worthy of being called after one of the great cities of the British Empire.

In reply, H.E. spoke with admiration of the great flight, and of the wonderful engineering skill which had made it possible. He said that it had added yet another to the many roads that lead to Delhi. After which, Lady Irwin pulled the cord which revealed the name "City of Delhi" painted on the fuselage.

Then the engines were started (the Bristol gas starter demonstrated its efficiency) and several flights were made, in which H.E., Lady Irwin, their children (who obviously enjoyed themselves immensely), members of the Council, and many others, were taken as passengers. Those who remained on the ground were content to admire several repetitions of that fine left-handed approach glide.

On Jan. 12 the Hercules proceeded to Ambala to be housed by 28th Squadron R.A.F. till the return journey.

DIVIDED RESPONSIBILITY.

A Meeting of the Joint Standing Committee of the R.Ae.C. and S.B.A.C. was held on Wednesday, Jan. 19, 1927, when there were present:—

The Royal Aero Club.—The Lord Edward A. Grosvenor (in the Chair), Capt. C. B. Wilson.

The Society of British Aircraft Constructors.—Capt. H. E. P. D. Acland, Sqdn. Commander James Bird, Mr. H. T. Vane.

In attendance.—The Royal Aero Club.—Lieut.-Col. W. A. Bristow, Lieut.-Col. M. O. Darby.

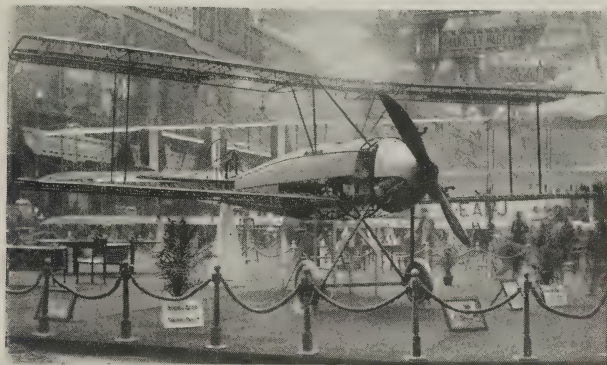
The S.B.A.C.—Messrs. H. Burroughes, D. Nicolson, T. O. M. Sopwith, H. E. Perrin, Secretary, R.Ae.C., J. T. Brown, Assist. Sec., S.B.A.C.

The Schneider Trophy.—It was decided to support a race being held this year provided a date not earlier than September was fixed.

The King's Cup.—The proposals submitted by the Club were approved. On behalf of the S.B.A.C. it was pointed out that they preferred a formula for handicapping. It was decided that a Joint Meeting of representatives of the S.B.A.C. and R.Ae.C. should be held with a view to arriving at a formula for this year's race.

The Aerial Derby.—In view of the report of the R.Ae.C. that Bournemouth was not considered suitable for the Aerial Derby it was decided to survey the Cranwell district and Salisbury Plain for a suitable course.

METAL CONSTRUCTION



1919



1925

THE Boulton & Paul P.10 Aeroplane, exhibited at the 1919 Paris Show, was the first complete example of modern all-metal construction to be introduced to the public. It compared on very favourable terms with contemporary wooden machines. Developments since that date have consisted not merely in the incorporation of these methods of construction in new types of aeroplanes. In

the evolution of new and better constructional features, in the application of constant aerodynamical research to body and wing forms, in the employment of new and better materials, in the improvement of methods of control, in the introduction of safe protective coatings—in these and many other ways, Boulton & Paul aircraft embody not only experience but **PROGRESS.**

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THE ROYAL AIR FORCE.

The London Gazette.

Jan. 28.

GENERAL DUTIES BRANCH.—Group Capt. W. R. Freeman, D.S.O., M.C., is appointed Deputy Director of Operations and Intelligence, Air Ministry (Jan. 24), vice Group Capt. C. S. Burnett, C.B.E., D.S.O.

The following are granted S.S. comms. as Plt. Offs. on probation, with effect from and with seniority of Jan. 15:—K. C. Blatchford, I. D. F. Bruce, H. A. G. Comerford, W. G. H. Ewing, H. Francis, G. A. G. Johnston, R. J. P. Morris, C. Pawley (Sec. Lt., 23rd London Regt., T.A.), C. E. N. Turton.

Lt. C. S. Philpott, Ches. Regt., is granted a temporary comm. as a Flg. Off. on secondment for four years' duty with the R.A.F. (Jan. 15).

Plt. Off. F. W. Field is promoted to the rank of Flg. Off. (Nov. 30, 1926). Plt. Off. on probation E. T. M. Smalley is confirmed in rank (Jan. 8).

Sq. Ldr. G. Blatherwick is placed on the retired list on account of ill-health (Jan. 21). Flt. Lt. C. B. Dick-Cleland is placed on the retired list on account of ill-health (Jan. 24). Flt. Lt. J. A. Hollis is transferred to the Reserve, Class A (Jan. 23). Flg. Off. B. A. de Nevers is transferred to the Reserve, Class C (Dec. 5, 1926) (substituted for the notification in *Gazette* Dec. 7, 1926). Plt. Off. I. M. S. Knight relinquishes his S.S. comm. on account of ill-health (Jan. 26).

The S.S. comms. of the following Plt. Offs. on probation are terminated on cessation of duty:—P. H. Danger (Dec. 22, 1926); G. C. Bainbridge (Jan. 26).

R. H. Portal, D.S.C., Cdr., R.N., Flg. Off., R.A.F., relinquishes his temp. comm. on return to Naval duty (Jan. 10). Flg. Off. D. G. Brodie (Lt., R.A.), relinquishes his temp. comm. on return to Army duty (Jan. 24).

STORES BRANCH.—Plt. Off. A. Amy is promoted to the rank of Flg. Off. (Jan. 25).

MEDICAL BRANCH.—The undermentioned Flg. Offs. are promoted to the rank of Flt. Lt. (Jan. 28):—C. G. J. Nicolls, M.B., B. Pollard. The seniority of Flg. Off. E. Thompson as a Flg. Off. is antedated to Nov. 22, 1925.

The undermentioned are granted temp. comms. in the ranks stated on attachment to the R.A.F. They will continue to receive emoluments from Army sources:—Ftr. Lt.—E. Alston (Temp. Capt., General List, Army, Dental Surgeon) (Jan. 8). Flg. Off.—H. P. Sutcliffe (Temp. Lt., General List, Army, Dental Surgeon) (Jan. 6).

Flt. Lt. H. J. Higgins (Capt., Army Dental Corps) relinquishes his temp. comm. on return to Army duty. Sq. Ldr. I. G. Worsley (Maj., Army Dental Corps) relinquishes his temp. comm. on resignation of his Army comm. (Jan. 6).

RESERVE OF AIR FORCE OFFICERS.—The undermentioned relinquish their comms. on completion of service:—Plt. Offs.—P. Bailey, K. F. Jones (Dec. 5, 1926); W. C. Pruden (Dec. 9, 1926); E. N. Hewitt, I. J. Hoare, J. T. Rogerson (Dec. 12, 1926); C. B. Waters (Dec. 19, 1926). Plt. Off.—W. V. Piggett (Jan. 12). Flg. Off. P. Harris relinquishes his comm. on account of ill-health, and is permitted to retain his rank (Jan. 26).

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—The undermentioned to be Plt. Offs.:—No. 600 CITY OF LONDON (BOMBING) SQUADRON—E. J. Farnshaw, No. 601 COUNTY OF LONDON (BOMBING) SQUADRON—A. G. Haward (Jan. 25).

ACCOUNTANT BRANCH.—The undermentioned to be Plt. Offs.:—No. 603 CITY OF EDINBURGH (BOMBING) SQUADRON—J. I. Jack (Jan. 25).

Appointments.

Week ending Jan. 31.

GENERAL DUTIES BRANCH.—Wing Commander F. L. Robinson, D.S.O., M.C., D.F.C., to H.Q., Iraq, for Personnel Staff duties, 24/1.

Flight Lieutenants S. L. G. Pope, D.F.C., to No. 22 Sqn., Martlesham Heath, 1/2. J. H. Winch, to No. 2 F.T.S., Digby, 18/1. J. G. S. Candy, D.F.C., to R.A.F. Depot, Egypt, 2/1. W. A. Duncan, to H.Q., Egypt, 2/1. N. S. Paynter, to No. 20 Sqn., India, 1/1. E. H. Bryant, to R.A.F. Base, Gosport, 24/1. J. I. Duncan, to Home Aircraft Depot, Henlow, 2/1. H. G. Rowe, to No. 207 Sqn., Eastchurch, 24/1.

Flying Officers B. H. Godfrey, to Armament and Gunnery School, Eastchurch, 1/10. E. V. S. Lacey, to No. 22 Sqn., Martlesham Heath, 1/2. J. Rodger, D.S.M., to R.A.F. Depot, Egypt, 14/1. H. Stafford, to No. 216 Sqn., Egypt, 2/1. G. C. Shepherd, to H.Q., Egypt, 13/1. H. Thomas, to R.A.F. Depot, Egypt, 12/1. I. E. Goodman, to Aircraft Park, India, 24/1. H. S. Hobby, M.C., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 24/12. N. A. P. Ratchett, to R.A.F. Station, Tangmere, 1/2. E. Addis, to Record Office, Ruislip, 20/1. J. H. Barringer, to No. 60 Sqn., India, 24/1.

Pilot Officers R. H. Griffiths, to No. 2 F.T.S., Digby, on appointment to a S.S. Comm., 24/1. W. M. C. Kennedy, to No. 1 F.T.S., Netheravon, 17/1. W. L. Bateman and P. S. Cook, to No. 100 Sqn., Snettisham, 14/12. C. H. L. Evans and C. G. Lucas, to No. 16 Sqn., Old Sarum, 14/12. S. H. C. Gray, to No. 13 Sqn., Andover, 14/12. J. F. Griffiths, to No. 2 F.T.S., Digby, 16/1. G. A. G. Johnson, to No. 2 F.T.S., Digby, on appointment to a S.S. Comm., 15/1.

STORES BRANCH.—Squadron Leaders W. J. B. Curtis, O.B.E., to H.Q., Egypt, 14/1. W. E. Aylwin, O.B.E., to H.Q., India, 25/12. P. M. Brambleby, to Aircraft Depot, India, 25/12.

Flight Lieutenants F. R. Wilkins, to No. 4 F.T.S., Egypt, 14/1. H. Jones, to R.A.F. Depot, Egypt, 14/1. R. D. G. Macroste, M.B.E., to H.Q., Egypt, 2/1. R. G. Gore, to R.A.F. Depot, Egypt, 2/1. W. C. Farley, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 14/1.

Flying Officers O. C. Ridley, M.C., to R.A.F. Station, Tangmere, 1/2. A. McC. Goddard, to R.A.F. Depot, Egypt, 14/1. H. B. S. Ballantyne, to No. 216 Sqn., Egypt, 2/1.

ACCOUNTANT BRANCH.—Flight Lieutenant E. V. Humphrey, to H.Q., Egypt, 14/1.

Flying Officers J. J. Caiger, to No. 208 Sqn., Egypt, 2/1. R. W. Freeman, to No. 14 Sqn., Palestine, 12/1. R. W. Collinson, to No. 4 F.T.S., Egypt, 2/1.

Fatal Accidents.

The Air Ministry regrets to announce that as the result of an accident at Norbury, London, to a Siskin of No. 41 Sqn., Northolt, Jan. 28, Flt. Lt. William Geoffrey Meggitt, M.C., the pilot and sole occupant of the aircraft, was killed.

The Air Ministry regrets to announce that as the result of an accident off the coast of Portugal to a Flycatcher machine of No. 405 Flight, on Jan. 27, Flg. Off. Arthur Sattin, the pilot and sole occupant of the aircraft, was drowned as the result of an unsuccessful attempt to land on the deck of the Aircraft carrier, *H.M.S. Furious*.

The Air Ministry regrets to announce that as the result of an accident off the South-West coast of Spain to a Blackburn Dart of No. 462 Flight, *H.M.S. Furious*, on Jan. 28, Gordon Thursby Campbell, Lt., R.N., Flg. Off., R.A.F., the pilot and sole occupant of the aircraft, was drowned.

The Secretary of State for Air.

Sir Samuel Hoare, the Secretary of State for Air, who is on a tour of inspection of R.A.F. Stations in India, left Multan on Jan. 25 and arrived at Peshawar on the same day.

H.M.S. Argus.

H.M.S. Argus, which has been recently re-commissioned at Chatham left Sheerness on Jan. 26 for Portsmouth. *H.M.S. Argus* was originally under orders to join the Atlantic Fleet in February, but has now been ordered to proceed to the China Station.

The R.A.F. Recruiting Depot.

The R.A.F. Recruiting Depot and the Headquarters of the Inspector of Recruiting, R.A.F., has been moved from 4, Henrietta Street, W.C.2, to Gwydyr House, Whitehall, S.W.1, as from Jan. 31, 1927.

Vacancies for Aircraft Apprentices.

The Air Ministry announces that five hundred aircraft apprentices, between the ages of 15 and 17, are required by the R.A.F. for entry into the Schools of Technical Training at Halton, Bucks, and at Flowerdown. They will be enlisted as the result of an Open Competition and of a Limited Competition held by the Civil Service Commissioners and the Air Ministry respectively.

Successful candidates will be required to complete a period of 12 (twelve) years' regular Air Force service from the age of 18, in addition to the training period. At the age of 30 they may return to civil life or may be permitted to re-engage to complete for pension.

Full information regarding the aircraft apprentice scheme, which offers a good opportunity to well-educated boys of obtaining a three-years' apprentice course of a high standard and of following an interesting technical career, can be obtained on application to the R.A.F., Gwydyr House, Whitehall.

R.A.F. SPORTS AND PASTIMES.

Rugby Football.

Royal Air Force v. Leicester.—Leicester beat the R.A.F. at Leicester on Jan. 26 by a goal, a penalty goal and a try (11) to a try (3). Leicester was the third section of the R.A.F.'s self-appointed thorny path to Twickenham, and the longest and sharpest thorn of the day was Mr. J. B. Nelson, the Scottish scrum-half. The high wind with periodical storms of rain were in favour of the R.A.F. eight forwards against Leicester's seven, but the Air Force backs are still weak in attack. *The Times* account of the game states:—

Unfortunately, the Air Force centres—who admittedly were being severely tested on such a day—sadly looked in *finesse*, controlled running and all the other things that go to make up constructive centre play. They must be given full credit for often taking difficult passes when going "all out," but speed and dash and straight running should not be confused with the process known as going like a bull at a gate. Still, there was hope to be found in their faults. Nor were they at all well served by the stand-off player, though the forwards and Russell between them frequently got the ball out and away. Nelson looked mildly surprised at some of Russell's over-anxious "spoiling" while the ball still was inside the scrummage, but neither he nor the referee was in a very serious frame of mind.

The forwards also remained amazingly cheerful at the end of all their maulings and plungings in the mire. J. S. Chick was too busy helping together a pack that sadly needs scrummage practice to be quite himself in the open. Still, he and the old Scottish international, C. H. H. Maxwell, were fairly prominent at intervals, and altogether it seemed as if the Air Force pack, in conjunction with Russell, once again may be a factor in the Services tournament.

Prentice kicked a penalty goal for Leicester after six minutes' play, and before half-time had converted a try scored by Flewitt in one of the corners and failed to convert his side's second try, touched down by Barlow after a clever run by Buckingham. There was no further scoring until late in the game, when the R.A.F., playing in turn with the wind, at last managed to kick-and-samb a try. Harvey and F. S. Hodder then combined to defeat Sambrook in the race for the touch-down. The try was not converted.



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The R.A.F. team were:—

Flt. Off. T. A. Hale-Munro, back; Flt. Lt. O. C. Bryson, Flt. Off. F. S. Hodder, AC. D. Massey, and Flt. Off. G. D. Harvey, three-quarter-backs; Flt. Off. G. D. Norwood and Sq. Ldr. J. C. Russell, half-backs; Flt. Lt. J. S. Chick, Flt. Lt. G. H. H. Maxwell, Flt. Off. Beamish, Flt. Off. J. E. Franks, Cpl. M. C. Christie, Flt. Off. N. H. Reynolds, Flt. Off. J. Fitch, and Flt. Off. A. Heskest, forwards.

The Fighting Area Association Football Shield.

The Semi-final in the Fighting Area Association Football Shield Competition was played at Farnborough on Jan. 27 between No. 3 (Fighter) Sqdn. and No. 43 (Fighter) Sqdn.

After 20 minutes' play No. 3 Sqdn., who had been on the defence from the start, set up a strong attack and AC. Walsley shot at goal. The ball hit the upright, but rebounded into goal. Encouraged by this success No. 3 Sqdn. took a greater share in the game and AC. Walsley scored again.

In the second half No. 3 Sqdn. played a great game and AC. Walsley scored twice again. No. 43 Sqdn. pulled themselves together towards the end and AC. Hammond scored twice in a few minutes. The game was refereed by Flt. Lt. T. Surr.—P. J. C.

The R.A.F. (India) Dinner.

The 4th Annual Re-union dinner for Officers who have served in the R.A.F. India Command, will be held this year at the New Princes Restaurant at 7.30 (for 8.0 p.m.) on Saturday, Mar. 12. The chair will be taken by Air Vice-Marshal Sir Philip Game, K.C.B., D.S.O.

Evening dress and miniatures.

Tickets 16s. 6d. each (exclusive of wines), can be obtained on application to Flt. Lt. J. G. Walser, M.C., Royal Air Force, Farnborough, not later than Mar. 10.

AIR POWER AND NAVAL STRATEGY.

A lecture was delivered at the Royal United Service Institution on Jan. 26 on "The Effect of Air Power on Naval Strategy" by Commander A. F. B. Palliser, D.S.C., R.N. Admiral Sir Henry Bruce, K.C.B., M.V.O., Chairman, introducing the Lecturer, said that Commander Palliser wished it to be understood that he had never served in the R.N.A.S. Admiral Bruce said that Commander Palliser was a Gunner Officer and had been in the Air Department at the Admiralty. He was now at the Royal Naval College at Greenwich.

[One is left a little in doubt as to whether Commander Palliser was anxious to show that he was unstained by contact with so despised a service as the R.N.A.S., or whether he was anxious to disarm aeronautical critics of his statements by disclaiming any personal experience of aviation.—C. G. G.]

Commander Palliser said that the effect of air power was largely determined by the state of the development of aircraft and means of defence against aircraft. He described the four main types of aircraft at present in use as (a) reconnaissance aircraft having a radius of action of about 200 miles and as being vulnerable except in formation; (b) weapon-carrying aircraft equipped with torpedoes or bombs and having a radius of from 100 to 300 miles and being comparatively weak in defence; (c) fighting aircraft having only 100 miles radius of action, and (d) airships having a large radius of action but being particularly vulnerable and therefore only suitable for reconnaissance over wide oceans where they would not meet with much opposition.

[A "radius" of action of only 100 miles (that is using the word correctly and meaning 100 miles out and 100 miles home) would mean about 14 hours' flying for a fighter, which is absurd. And Naval people when they talk of "radius" generally mean "total range."—C. G. G.]

He considered that the vulnerability of types (a), (b) and (d) limited them to the radius of type (c), for defensive purposes. As a general rule ship-borne aircraft were inferior in performance to shore based aircraft as they had only a radius of 150 miles from their craft.

The function of aircraft carriers was limited by the Washington Treaty. But agreement had never been reached by the delegates of the Washington Treaty as to the rules concerning air attacks on merchant shipping. The Lecturer considered that aircraft attack against merchant shipping would only be used by Powers who could not gain superiority by any other means. There was considerable difficulty in the direct use of aircraft for this purpose owing to the fact that ships at sea were very widely scattered even in narrow waters.

[That may be the Navy's view. As a matter of fact in a real war aircraft would sink any ship of any hostile nation. And torpedo machines of modern types could clear the sea of enemy shipping all over a belt of 150 miles wide from their own coasts.—C. G. G.]

The employment of aircraft on trade routes would be most valuable in narrow waters but here again aircraft could not easily direct shipping without strong co-operation from the sea. Concentrated air attack on focal shipping points would divert shipping to alternative and longer routes.

Harbours, ports, docks and locks were particularly vulnerable to air attack by day or night. A great port

immobilised by air attack would paralyse part of a Fleet and seriously affect merchant shipping.

With regard to defence, the Lecturer thought that aircraft would enable the cruisers to cover a much wider area and that aircraft carried in merchant ships could be very valuable for the defence of focal points on trade routes. He did not consider that the escort of convoys by aircraft was an economical proposition.

[That depends entirely on the value of the convoy and the number of aircraft used as escort. Against submarines one big flying-boat could well afford protection to a whole fleet of merchant ships.—C. G. G.]

The best defence of merchant shipping was air attack on enemy bases. Temporary island air bases were better than aircraft carriers for the defence of distant points and narrow waters. In the future islands would possibly regain the strategic importance held by them in the Naval battles of the 18th century.

The value of aircraft was largely limited by weather conditions, including the possibility of previous bad weather having made it impossible for aircraft to take off from their aerodromes.

With regard to the landing of forces the factor of complete surprise should be eliminated by air reconnaissance.

Bombing and torpedo attacks by shore-based aircraft from an advanced shore-base might in future drive an unwilling enemy out of his harbour. Aircraft carriers could most usefully be employed to carry aircraft towards their objective leaving them to find their own way back to a shore base.

[The four preceding paragraphs are very sound, and deserve to be carefully noted by Air Force and Naval personnel alike.—C. G. G.]

The Lecturer thought that the participation in Naval battles of Air Force personnel not fully trained to Naval requirements might prove as dangerous to friend as foe.

[But not so dangerous as Naval personnel unaccustomed to, or unappreciative of aircraft.—C. G. G.]

CAPTAIN WILFRED EGERTON, R.N., opening the Discussion, said that he thought that the Lecturer might have laid greater stress on the value of the aircraft weapon for operations against a blockaded enemy. It was now known that attack could be made on blockaded harbours from overhead and it was not known to what extent defence against such attack would be effective.

He did not agree that such attacks were not the job of the aircraft carriers. He thought that research into the design of aircraft which would not need so much deck space would be very valuable. At present a ship of 27,000 tons was needed to carry fifty aeroplanes.

AIR COMMODORE F. V. HOLZ said that his views were personal and unauthorised by the Air Ministry. He thought that where a country was limited in its expenditure on armament it should consider that twenty bombing squadrons could be built for the cost of one battle cruiser. Although he agreed with the Lecturer that specialised training was needed for bombing action from the air during Fleet action, a man could easily be trained to attack bases and forts and harbours. Bombing squadrons which could fulfil all duties were needed.

CAPTAIN K. G. DEWAR, R.N., said that a battle cruiser could not be replaced by a bombing squadron unless the bombing aircraft could exercise the functions of battle cruisers. Bombing aircraft could not control trade routes, one of the functions of the cruiser. He thought that the value of aircraft was very much overrated. His experience during the Dardanelles campaign was that it was very difficult to hit a ship from an aeroplane. Considering the speed at which an aeroplane moved this was not surprising.

[Captain Dewar evidently suffers from that unfortunate tendency, so prevalent in the Navy, to look backwards ten years instead of forwards ten years. He has also apparently never heard of bomb-sights. Neither can he have had any experience of the various bombing practices and demonstrations carried out since the War, 1914-18, by the Air Forces of sundry Powers.]

He went on to say that the Lecturer had mentioned lock gates as being possible targets. In spite of the fact that Zebrugge was within easy range of British bombing aeroplanes and that thousands of tons of bombs were dropped on it, not one of them hit the lock gates.

[Captain Dewar either does not know, or omitted to mention, that the R.N.A.S. were forbidden to bomb the locks at Zebrugge and Ostende, because the Admiral Commanding the Dover Patrol wanted them for targets for his precious monitors and things. After the Dover Patrol had failed to hit anything, largely through refusing to take gun-sighting from R.N.A.S. aircraft, and after the ships of the Dover Patrol had been out-ranged and frightened away from the Belgian Coast by the Tirpitz and other big-gun batteries ashore, the R.N.A.S. were grudgingly allowed to do a little bombing. But it never amounted to much. And to say that "thousands of tons of bombs" were dropped is a grossly misleading exaggeration. As a matter of fact the few bombs that were dropped did more to cramp the style of the German submarines than did all the so-called "block ships" which the Navy planted with so much loss of life and misplaced gallantry—for they never blocked the canals at all.—C. G. G.]

AIR COMMODORE LUDLOW-HEWITT said that Captain Dewar was talking of history ten years old, and things had progressed in the Royal Air Force in ten years. As far as he could remember there were no bomb-sights in the Dardanelles.

He thought that the most effective use of aircraft in Naval warfare was against forts. Constant and sustained bombing from the air would either destroy in harbour or drive to sea any fleet blockaded in harbour.

He thought it was very rash to overestimate the future effect of weather on aircraft. Machines belonging to the regular civil air lines operated on their routes in all weathers. Fog stopped ships just as much as it did aircraft. At the same time he thought that the Power whose aircraft were able to go out in all weathers would have a great advantage over the Power whose aircraft could not do so.—C. M. MCA.

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A REMARKABLE FLIGHT.

Between Aug. 27 and Sept. 22, 1926, Capt. B. Orlinski and Colour-Sgt. Kubiak of the Polish Military Air Service flew from Warsaw to Tokyo and back on a Breguet XIX biplane (450 h.p. Lorraine-Dietrich engine).

Capt. Orlinski's report on this flight reveals some very interesting facts concerning the difficulties he met with *en route*. Unfortunately it is not possible to publish his report in full, but the following *précis* gives a very good idea of the pertinacity of this plucky pilot in that which he had set out to do.

He left Warsaw at 04.25 hours and following the old Napoleonic highway, Orsha—Smolensk—Viasma—Mozaisk, reached Moscow, a distance of 714 miles, in 5 hours 43 mins. flying time. After landing the mechanic reported a burst, or cracked, airscrew. Capt. Orlinski investigated, and found it so. In his report he remarks: "The nearest town where I could change the airscrew was either Warsaw or Tokyo. I chose Tokyo!"

After breakfast they left Moscow for Kazan, and beyond Oka flew into rain and low clouds, which later developed into a gale. Owing to the weather, all bearings were lost and they were compelled to fly low over the Volga.

Over Kazan the weather was so thick that it was impossible to find the aerodrome. While circling round searching, night fell. Fortunately signal lights were lit and a safe landing was made.

The last stage of 466 miles was covered in 4 hours 50 mins., making a total of 1,180 miles in 10 hours 35 mins. flying for the first day.

The departure from Kazan was delayed one day by heavy rain and mist. On Aug. 29 they left Kazan for Omsk. Soon after leaving everything became enveloped in thick mist under which it was impossible to fly. They then climbed to 4,000 feet, and flew for two hours above the mist.

On coming down through the mist they found that they were maintaining a good course. On reaching the foothills of the Ural Range they flew low between two strata of clouds. The altimeter showed 800-900 metres, but only a couple of metres at the most separated them from the tops of the trees and the hills. The Russian map they were using was inaccurate. From Kurgan to Omsk they flew in fine weather.

The distance from Kazan to Omsk, 994 miles, was covered in 9 hours 20 mins. non-stop.

On Aug. 30 they left Omsk in fine weather, and with a favourable wind they followed the railway to Novo-Nicholaevsk, beyond which they saw the Siberian "taiga," or forest, for the first time.

As Capt. Orlinski says, "The 'taiga' evokes an un-

pleasant, hopeless impression. Dense forests, fallen trees and marsh. The same gloomy landscape continually." They reached Krasnoyarsk, 867 miles from Omsk, in seven hours non-stop.

On Aug. 31 they flew from Krasnoyarsk to Chita, 994 miles, in 9 hours 30 mins. non-stop, over dense "taiga" country.

On Sept. 1 they left Chita for Harbin in excellent weather. The country changed to wild, sun-baked steppe-land, with here and there droves of wild horses, tents of nomadic Asiatic tribes, and latterly scattered Chinese villages. Their map showed certain lakes on their route, but these had dried up.

They proceeded by compass and reached Harbin, 765 miles, in 7 hours 15 mins. non-stop.

On Sept. 2 they left Harbin, intending to reach Hai-ju, the same day. The weather was good at the start, but later turned to violent rain. They got lost in the mountains of the Korean border, which were covered in dense mist. At one time they averted disaster by a 180° turn, when 100 metres ahead they saw the spectral outline of a mountain direct in their line of flight. Hereafter they abandoned hope of getting through to Hai-ju and returned to Mukden with a misfiring engine, having covered a distance of 310 miles in 3 hours 30 mins.

On Sept. 3 they flew from Mukden to Hai-ju in fine weather, covering 250 miles in 2 hours 40 mins. There information was received that a typhoon was passing over Japan making flying impossible, and these conditions lasted all the following day.

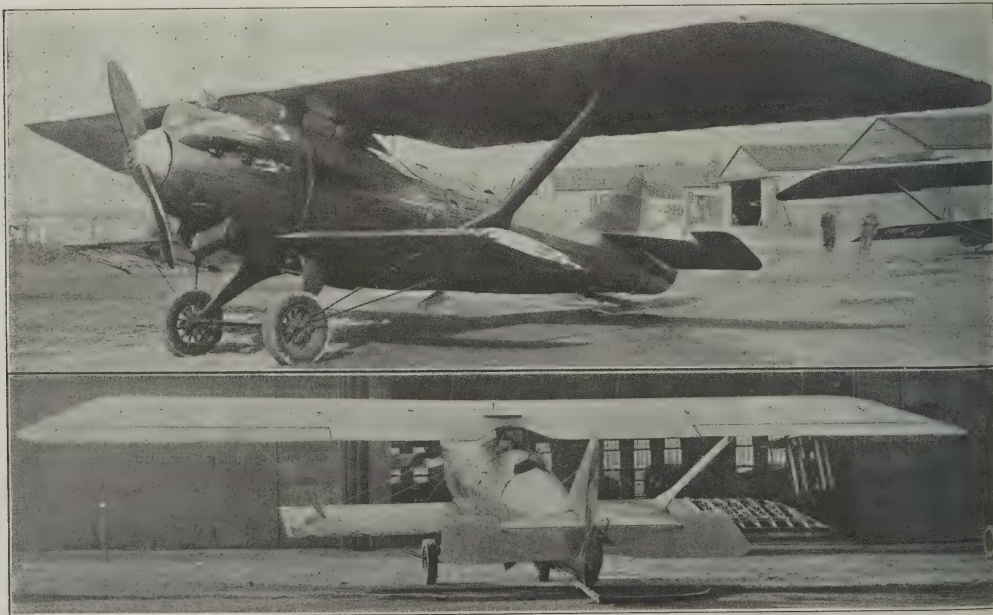
On Sept. 5 they crossed the Sea of Japan and arrived at Tokyo at 16.30 hours, having covered the 990 odd miles from Hai-ju in 9 hours 10 mins. non-stop.

On Sept. 11 the return flight was begun, in unfavourable weather, but the flight could not be delayed otherwise it would have been necessary to return by boat and railway.

The weather grew worse and three attempts were made to penetrate the dense mist and rain over the Sea of Japan. Finally, after three hours' struggle, they were forced to give up and return to Osaka, only 310 miles from Tokyo, after eleven hours' flying.

On Sept. 13 they left Osaka for Hai-ju. At sea they met dense cloud and rain and they began to lose their bearings. The machine was so buffeted by heavy wind that the compass became unreliable.

To all intents they were lost. The wind changed from east to west, and land which they took to be Tsushima proved later to be Korea, from which they were flying out



WINNING THROUGH.—The Breguet XIX biplane (450 h.p. Lorraine-Dietrich engine) on which Capt. Orlinski flew from Warsaw to Tokyo and back. The broken port bottom plane, sustained at Byrka on the return journey, the starboard bottom wing-tip stripped in order to balance the opposite wing, the damaged spinner and engine cowlings, are clearly shown in the photographs.

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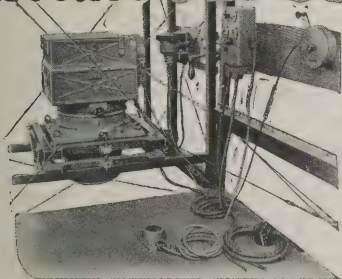
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to sea again. Again land was sighted but this later proved to be a rocky islet. In trying to locate this on the map, the map was torn out of the pilot's hands and lost. Sjt. Kubiak produced a map torn from an atlas and from this their bearings were regained.

On reaching land they steered north by compass for Hai-ju. On descending through the mist to verify their position, they followed a railway, but later found that they were following the wrong line and were 75 miles from Hai-ju with no petrol left. They landed at Hai-ko alongside the railway line after covering 620 miles in 9 hours 50 mins. non-stop.

On Sept. 14 they flew on to Hai-ju, 87 miles, in 40 mins., where they found a leaking oil pipe.

On Sept. 15 they left Hai-ju for Mukden in good weather. Near the Chinese-Soviet border the oil-gauge fell to zero. As they were over hopeless desert they decided to reach Manchuria Junction at all costs, but were finally compelled to land four miles short of the station, after covering 1,025 miles in 9 hours 20 mins.

The leaking pipe was bound up with tape and the next day they left for Chita. Again the oil leaked away and they were forced to land at Byrka after half-an-hour's flying.

While Sjt. Kubiak was attending to the faulty pipe a sudden gale sprang up. Before it was possible to peg the machine down securely it was lifted and blown some 30-35 metres into a fence. The result of this was a broken bottom left-hand plane and a smashed spinner.

After some consideration Capt. Orlinski decided to cut off the broken wing-tip, and remove the corresponding amount of fabric from the right-hand bottom plane. By noon the following day the modifications were carried out, and, not wishing to endanger anyone's life but his own, Capt. Orlinski proposed that Sjt. Kubiak should return to Warsaw by land. This he refused to do.

On Sept. 18 they left Byrka and reached Irkutsk, 175 miles in 1 hour 30 mins., after bucking a strong head wind, which at times, but for their belts, would have thrown them out of the machine.

The remainder of their flight, Irkutsk—Krasnoyarsk (560 miles in 5 hours 30 mins.), Krasnoyarsk—Omsk (807 miles in 9 hours 20 mins.), Omsk—Kazan (990 miles in 8 hours 30 mins.), Kazan—Moscow (465 miles in 4 hours), and Moscow—Warsaw (714 miles in 6 hours), was comparatively easy.

The engine ran steadily worse and all along the route they left pieces of their Breguet. In Krasnoyarsk they left some of the engine cowling. Between Krasnoyarsk and Omsk more portions of the left wing flew off. And at every aerodrome, Sjt. Kubiak removed handfuls of metal from the oil filter. Between Moscow and Warsaw the engine ran badly, backfiring and losing revs.

At 14.23 hours on Sept. 22 they landed at Warsaw amid the acclamations of a huge crowd which had assembled to see the end of a very gallant flight.—L. B.

WING FLUTTER.

R. and M. No. 1041 of the Aeronautical Research Committee contains a report of the Accidents Investigation Committee on five accidents to R.A.F. aeroplanes caused by the phenomenon known as wing flutter. Though it does not seem definitely to be so stated, apparently all five accidents occurred on the same type of aeroplane. From other internal evidence it appears that the type in question is a relatively modern single-seat fighter—which it is said is no longer in use in the Service. This statement may be assumed to mean that all Service machines of this type have been fitted with modified ailerons which apparently overcome the trouble.

All the accidents investigated have very similar characteristics. The trouble arises only in a dive at a speed of 160 or more m.p.h. At the critical speed violent oscillation of the wing tips—at a frequency of 800 to 1,000 to the minute—develops, accompanied by violent vibration of the whole machine. After this occurrence the machine was in each case permanently either out of trim or partially out of control, and examination of the remains of the machine has shown serious structural damage to the wing structure.

Rib joints were broken, internal wiring slack, in some instances control levers or ailerons had collapsed, and in other cases cracks had developed in the wing spars.

Investigation of these accidents leaves no room for doubt that wing flutter of the type investigated in 1922 by Mr. Von Baumhauer, of the Amsterdam Aerodynamic Laboratories, was the occasion of these accidents.

The Committee report that liability to wing flutter may be removed by various methods. That adopted in the type of aeroplane directly concerned is moving the point of attachment of the control connection to the aileron. A more radical method—that recommended, it may be mentioned, by Mr. Baumhauer in 1923—is to arrange that the centre of gravity of the aileron shall lie on the hinge axis. A third suggestion is in the use of an attachment to limit the move-

ment of the overhang end of the spars, or to increase their stiffness.

The report is accompanied by appendices giving details of the five accidents considered, a mathematical investigation of the theory of wing flutter by Prof. Bairstow, and reports on various experiments having a bearing on the subject.

LORD BEARSTED.

It is with great regret that one has to record the death on Monday, Jan. 17, of Lord Bearsted, formerly Sir Marcus Samuel, the head of the Shell Transport and Trading Co. Ltd. He died the day after the death of his wife.

The Samuel fortunes were started by Lord Bearsted's father who, according to a story which is generally accepted as true, made his money out of importing shells for the decoration of fancy boxes and other articles. And, according to that well-informed paper, *The Motor*, it was because of this previous business connection that Mr. Marcus Samuel, who became interested in oil while in the Far East on business, adopted the name Shell when founding his oil company.

Some idea of the rapidity with which great fortunes are made may be gathered from the fact that it was only in 1890 or so that Mr. Samuel started in the oil business. At that time he cannot have been interested in automobiles, for there was practically no real motor business before the year 1900. In fact even as late as 1902 petrol was merely a bye-product of paraffin and lubricating oil. Yet it is to the use of the internal combustion engine that all the great oil companies owe their present wealth.

Again *The Motor* is one's authority for saying that Mr. Samuel was the originator of the modern method of conveying petroleum in bulk in tank steamers instead of in drums on ordinary ships. His company was also primarily responsible for the recent developments in the distribution of motor spirit and lubricating oil which have made motoring and flying easy, even most remote parts of the country.

In building up the great Shell Transport business Lord Bearsted was materially assisted by his brother, Mr. Samuel Samuel, who is now Member of Parliament for Putney.

Though Lord Bearsted personally took very little interest in motoring affairs and, so far as one can remember, never took any interest at all in aviation—at any rate never appearing at any aeronautical function—the fact remains that to his foresight in organising the supply of motor spirit, not only in quantity but of the very highest quality, especially in the development of Shell Aviation Spirit, very much of our modern progress in motoring and aviation is due. And therefore all of us owe him a debt of gratitude.

Lord Bearsted succeeded in his peerage by his eldest son, Captain Walter Samuel, who, since Lord Bearsted retired in 1921, has been Chairman of Shell Mex Ltd.

LONG TOM.

All those who have taken a sporting interest in flying since the War, 1914-18, will regret very much to hear of the death of Fred Thomas Harris, popularly known as "Long Tom," who died on Jan. 30 of pernicious anæmia after four months' illness, in his fiftieth year.

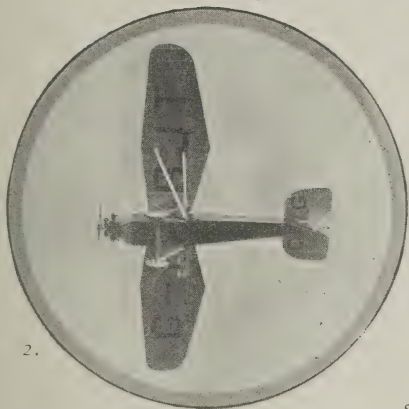
Long Tom, if not the first professional bookmaker to make a book on flying, was at any rate the first bookmaker of good standing to specialise on flying races. And he certainly was the first to get betting prices on air races down to something like reasonable figures. Whether he did it on actuarial principles or whether he did it by sheer light of nature, he was at any rate able to offer odds which did in fact represent something very close to the real chances of competitors.

Apart from that, he had as clean a reputation as any man in any business could possibly wish to have. Everybody who had any betting transactions with him was not only able to trust his financial stability but was always certain of getting a square deal, with a bit of generosity thrown in.

One was never able to discover for certain whether book-making was Long Tom's main line of business or not. Quite distinct from his betting business, Long Tom was also "Harris the Sign King," and those who took the trouble to look may have found his name on a number of the most striking signs to be seen in the London area.

Comparatively recently Long Tom acquired the rights in those reflector signs which now burst upon one's vision at night when illuminated by one's own headlights at many of the salient corners of our main roads. In that branch of his business alone he undoubtedly had the makings of a very handsome fortune, and when one last had a talk with him, on the last day of the King's Cup Race at Hendon, he admitted in his quiet and modest way that he really thought he was onto a good thing. It was particularly hard luck that he should not have lived to reap the full harvest of his foresight.

To his widow and family one tenders the deepest sympathy from every individual concerned with aviation who has engaged with Long Tom in the friendly pastime of endeavouring to extract money from one another.—C. G. G.



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THE U.S. ARMY AIR BILL.

In July, 1926, the Army Air Bill, a piece of legislation on which the results of the Lampert Committee and the Morrow Board had a very large bearing, was signed by the President of the United States and thereby became law.

The Act provides for the creation of an Air Corps to replace the present Air Service. The Air Corps shall consist of one Chief of the Air Corps with rank of Major-General with three assistant Brigadier-Generals, 1,514 officers and 16,000 enlisted men, including not more than 2,500 flying cadets.

The Chief of the Air Corps, at least two of the Brigadier-Generals, and at least 90 per cent. of the lower grade officers must be flying officers.

All officers in charge of flying units and officers transferred from other branches of the Army must be flying officers, the latter being allowed one year to qualify.

To obtain a flying rating an officer must have had at least 200 flying hours and have passed the prescribed tests and courses.

After July 29 at least 20 per cent. of the flying personnel shall be enlisted men.

An increase of 50 per cent. in pay for regular flying is provided and a Distinguished Flying Cross and a ratings medal are to be instituted, the award of which will carry an increase of pay. Members of the National Guard and the Reserve Corps come under the new flight pay regulations.

In addition the Bill directs the Secretary of War to investigate the alleged injustices which exist in the promotion list of the Army, and to submit a report to Congress, together with his recommendations for changes, if any, on the present promotion list.

For a period of three years there is created in each of the Divisions of the War Department General Staff an Air Section, to be headed by an officer of the Air Corps, the duties of which shall be to consider and recommend proper action on such air matters as may be referred to such division.

To bring the personnel up to the authorised, 1,514 officers and 16,000 enlisted men means an increase of 403 officers and 6,240 enlisted men.

The Secretary of War is authorised to equip and maintain the Air Corps with one thousand eight hundred serviceable and up-to-date aircraft and such number of airships and captive and free balloons as may be determined necessary for training purposes, together with spares, equipment, supplies, sheds and installations necessary for the operation and maintenance of the aforementioned aircraft.

It is also provided that the necessary replacement of aircraft shall not exceed 400 annually and that the total number of aircraft authorised shall not include the number necessary for the training and equipment of the National Guard and the training of the organised Reserves.

The total increase in the personnel and equipment authorised shall be distributed over a five-year period beginning July 1, 1926.

The Bill also reorganises the method of letting contracts to the Aircraft Industry. This amounts to a competition in which design and price have a part.

The Secretary of War, before procuring new designs of aircraft or aircraft parts or accessories must advertise in three of the leading aeronautical journals stating in the advertisement in general terms the kind of aircraft, part or accessory to be developed, and the approximate number or quantity required.

The department concerned shall furnish to each applicant identical specific detailed information as to the conditions and requirements of the competition, and as to the various features and characteristics to be developed, listing specifically the respective measures of merit expressed in rates of percentage that shall be applied in determining the merits of the designs, and these measures shall be adhered to throughout.

All designs submitted shall be referred to a Board appointed for that purpose by the Secretary of the Department concerned.

The decision of the Secretary shall be final and the announcement of the award shall be made public to include the percentages awarded to each of the several features or characteristics of the designs submitted together with the prices quoted by the various competitors.

The Secretary is authorised to contract with the winner of the competition for the building of the aircraft, parts or accessories. But if it be found that the winner has no facilities for construction or if he is unable to reach a price satisfactory to the Government, the Secretary is authorised to purchase the design at a price not to exceed that submitted in the design competition.

Any department of the Government may then build or have built, by contract to the lowest bidder for the work, air-

craft or parts according to the designs, the designer being permitted to patent the design and be entitled to the exclusive rights as against anyone but the Government or its assignee.

Any competitor claiming error in the award of the contract may have his complaint examined by an independent Board of Arbitration.

All bidders must be citizens of the United States or corporations of which not less than three-fourths of the capital is owned by Americans.

The Secretary of War may at his discretion purchase abroad experimental aircraft, parts or accessories. And if, as the result of such purchases, new designs of proved merit are found, the Secretary may arrange for their construction by American firms.

A Board, known as the Patents and Designs Board, has been created, the three members of which are the Secretaries of War, Navy and Commerce. To this Board any individual, firm or corporation may submit designs for aircraft, aircraft parts or accessories, and on the merits and usefulness of the design the Board may fix a price, not to exceed \$75,000. If the design is purchased the individual, firm or corporation shall relinquish exclusive rights to the U.S. Government.

[The new arrangement seems to be a compromise between our separate Air Force and the old system by which the Air Service was a simple branch of the Army. The new Air Corps is apparently under the Secretary for War, but not in any way under the Army Bureau. It is in fact rather in the position in which the R.A.F. was when Mr. Churchill was Secretary of State for War and Air at the same time. The arrangement is at any rate a step in the right direction.]

The new contract system is also an advance, as it abolishes the regulation under which all aircraft contracts had to be given to the lowest bidder regardless of his ability to produce at the price quoted.

Those who did one the honour of reading, and inwardly digesting, one's articles on the U.S. Air Services some two years ago, when one visited the States, will remember that the arrangements which have now been reached were suggested, among others, as possible remedies for the dissatisfaction which existed at that time in the U.S. Flying Services and in the U.S. Aircraft Industry.—C. G. G.]

On July 17 Lieut.-Col. F. P. Lahm, Air Officer commanding 6th Corps Area, San Francisco, Cal., and Lieut.-Col. W. E. Gilmore, Chief of the Supply Division in the office of the Chief of the Air Staff, were promoted Brigadier-Generals. These two officers, together with Brig.-General J. E. Fechet, are the three new assistant Chiefs of the Air Corps under Major-General M. Patrick under the new Army Air Bill legislation.

THE FIRST INVERTED ENGINE.

A correspondent whose love of accuracy apparently outweighs his fear of the penalty for offending against the Official Secrets Act writes pointing out that THE AEROPLANE was not strictly truthful in stating that the Beardmore Typhoon was the first British inverted engine to fly. He states, of his own knowledge, and in gallant defiance of punishment for its disclosure, that the Napier Lioness has in fact flown, apparently in more than one aeroplane.

In spite of the best efforts of the Darkness and Composure Department of the Air Ministry most people all over the World who are interested in aviation know that the Lioness is in fact an inverted Napier Lion engine. And one has heard from numerous sources that it has given very good results in bench tests. But one does not happen to have come across personally anybody who has actually flown it.

Therefore one is glad to hear that the Ancient Establishment of D. Napier and Son Ltd. can actually claim to have built the first inverted British aero-engine to fly, even though its light has had to be hidden under the bushel of the Air Ministry's Secret List.

THE LEADER OF GERMAN CIVIL AVIATION.

[BY ONE WHO KNOWS HIM.]

On Jan. 26 one of the leading personalities in German Civil Aviation, Director Martin Wronsky, Member of the Board of the Deutsche Luft Hansa, celebrated his fiftieth birthday.

Herr Wronsky was formerly an officer in the German Regular Army, having been commissioned lieutenant in 1898. He was appointed to the staff of a General Officer during the war and was subsequently transferred to Grand Headquarters.

Soon after the War 1914-18, when the first attempts were made towards developing German Commercial Aviation, Director Wronsky was one of the first to place himself at the disposal of the newly created and very promising Transport Department. He has been Director of German Civil Aviation since 1919, a fact which makes him one of the oldest participants in European Commercial Flying. From the very beginning he made his foremost duty the settling in a businesslike manner all questions of transport, both with

regard to policy and to organisation (passenger traffic, as well as mails and freight).

Afterwards Director Wronsky joined the Board of the Deutsche Luftreederei, which was founded as far back as 1917 by the joint endeavours of the Deutsche Bank and the Allgemeine Elektrizitäts-Gesellschaft, and was, therefore, the first Company in Germany to undertake practical commercial aviation. It began operations in 1919 on the Berlin-Weimar line, the latter town being where the German National Assembly met.

After completing his initial work in commercial aviation, Director Wronsky, together with Director Merkel, remained on the Board of the Deutscher Aero-Lloyd, and, when at the beginning of last year there emerged the Deutsche Luft Hansa, amalgamating the interests of the various Air Transport Companies, he was called to the Board of Directors, which also includes Director Milch of the Junkers-Luftverkehrs Co., in addition to the two members from the Aero-Lloyd Co.

It is permissible to say that the structure of the whole of the German aerial network, particularly as regards its international lines, was framed almost without exception through negotiations in which Herr Wronsky played a decisive part. For instance, it may be mentioned that it was he who arranged the first meeting with Russian interests which was responsible for the organisation of the first trans-Continental London-Berlin-Moscow line.

In a similar manner, Herr Wronsky played an important part in the international organisation of aviation, from the very moment the movement was initiated. One may well describe him as one of the spiritual fathers of the International Air Traffic Association, the well-known Iata, representing the interests of 23 air transport companies in 18 European countries. The activities of this body reached a very high point in the Autumn of last year, when its 18th Meeting was held in the rooms of the Foreign Office in Berlin, with Herr Director Wronsky in the Chair.

He is personally devoted to the development of friendly relations in commercial aeronautics with the companies of all nations. These friendly relations were of the utmost importance in English and French circles for the purpose of abolishing the fettering restrictions imposed upon German Aviation by the London ultimatum. For, if at last in May of last year the Franco-German Agreement gave German Civil Aviation its freedom, this was only possible because



Herr Director Martin Wronsky.

aviation circles in all countries perceived the troublesome nature to commercial air lines of a European aerial network closed through the restrictions imposed upon Germany.

Thus Director Wronsky has been for many years efficiently fostering the progress of hardly-oppressed German Aviation.

[To these notes one would add one's personal congratulations to Herr Director Wronsky on celebrating his Jubilee. All history teaches us that the greatest generals and the greatest statesmen do their best work between the ages of 50 and 75 years. So, in his work for aviation, which needs a combination of generalship and statesmanship, we may hope for many years of still more valuable achievement from one who has already done great service to his Nation and to Western Civilisation.—C. G. G.]



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THE PIONEER EARTH INDUCTOR COMPASS.

It is fairly well known that the ordinary magnetic compass suffers from certain inherent defects which are particularly apparent when it is used on an aeroplane. A very great deal has been done towards reducing the importance of these defects, but it is nevertheless a fact that the best of compasses in an aeroplane is apt to be more of a delusion and a snare than anything else, unless very great care is taken in the installation, and unless it is checked and if necessary rechecked at fairly frequent intervals.

The Pioneer Earth Inductor Compass, which has been developed by the Pioneer Instrument Co., of Brooklyn, N.Y., is an instrument which depends, like the ordinary compass, for its operation upon the earth's magnetic field, but at the same time escapes from some of the deficiencies of the ordinary compass and promises to be of very great value for aircraft.

To appreciate the differences between the two types of compass and the virtues of the new type, some general outline of the difficulties encountered with the usual type of compass, and their causes are essential. The magnetic lines of force which constitute the earth's field, are not horizontal, except in the vicinity of the equator. At the magnetic pole they would be vertical, and in the latitude of London they are inclined at about 23° to the vertical. As a result of this the force exercised by this field on a compass needle freely suspended, not only tends to direct the needle horizontally into a North and South direction, but also to cause the needle to deflect vertically. In the latitude of London, this vertical directive force is approximately three times as great as the horizontal directive force.

For the purposes of a compass only the horizontal force is required to be effective, and the compass needle is accord-

ingly balanced against the vertical component of the field, so that the horizontal component alone controls it. This balancing however is only possible for a compass either at rest or in steady motion. If the compass is subjected to acceleration, inertia of the balance weights will tend to throw the compass needle out of the horizontal. As soon as this happens the strong vertical component of magnetic force exercises its influence on the needle, and may cause it to point into some direction far removed from the magnetic north.

If, as the result of a heavily-banked turn, the compass card or needle is tilted so that the northerly point of the card is on the upper side, the vertical directive force will tend to move the north pole of the needle towards the lower, or southerly, side of the machine. In these latitudes a card tilt of 30° will cause the compass to tend to point south instead of north.

It is for this reason that the compass can become entirely useless on a turn. Tilts of the compass may arise from rolling, pitching, or yawing oscillations of the aeroplane which are transmitted to the card by the viscosity of the fluid on which it floats.

Vibrations of the engine frequently have a rotary component in the plane of the compass needle and will cause swinging of the card, or, in bad cases, complete rotation.

The local direction of the earth's magnetic field may be largely deflected by the near proximity of magnetic (iron and steel) objects in the vicinity. The ordinary compass must be placed where the pilot can observe it, and is therefore necessarily close to the engine and often to moving parts (controls, etc.) of magnetic material. These affect the compass to an appreciable extent, and although the effects may



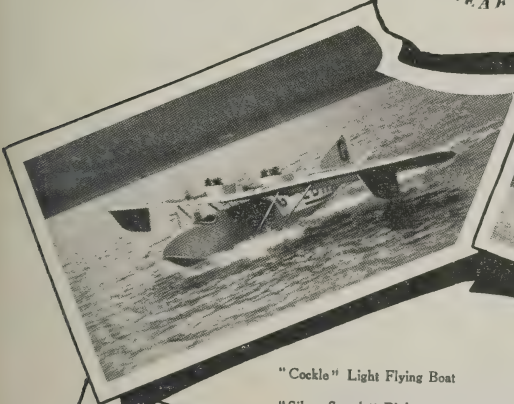
THE PIONEER INDUCTOR COMPASS.—Top left, the Controller, or Course-setting dial, with, below, the Indicator which shows any deviation from the course set on the controller. Right, the Generator (in this case wind-driven). On the right the coupling rod to the Controller may be seen.

Leading the World

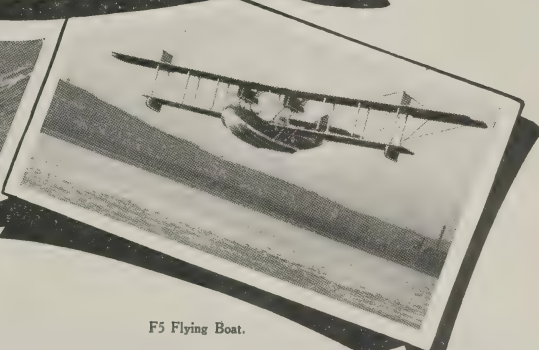
An extract from
"THE TIMES"
of 20th August, 1926.

Short Brothers are now
designers and constructors of all-metal floats.
Other all-metal aircraft are in construction,
and Great Britain may well lead the world in
the all-metal construction of seagoing aircraft
as a result of the independent work done at
Rochester during the last few years.

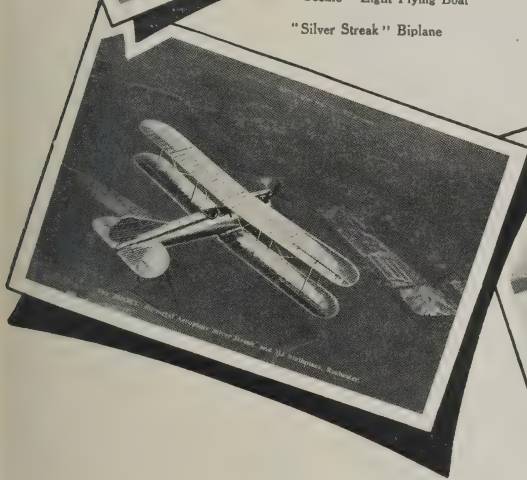
BEAK DOWN ON THE



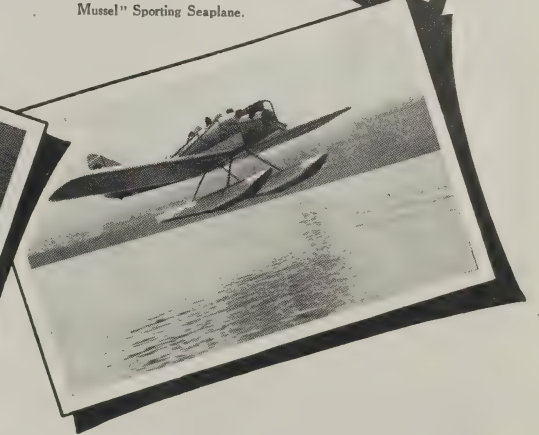
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be in large part compensated by the use of correcting magnets, any such correction must frequently be checked, because these iron and steel parts are capable of becoming themselves magnetised to a variable extent.

The Pioneer Earth Inductor Compass consists of an electric generator or dynamo which has no field magnets of its own but depends upon the earth's magnetic field. In other words it consists solely of a rotating armature fitted with a commutator and a pair of collecting brushes.

The electrical output of a given armature of this type depends upon the speed of rotation, the strength of the magnetic field in which it works and upon the angle between the direction of that field and the direction of a line between the two collecting brushes. If the angle is zero—that is if the field is an earth field and the brushes are in the N. and S. (magnetic) plane at the particular—the output is zero.

The armature of the Pioneer generator is vertical, and the brushes can be rotated round the armature in a horizontal plane. The brushes are connected to a central zero voltmeter, and if the armature is rotating at a sufficient speed this galvanometer can read zero only when the brushes are in a N. S. plane. If the instrument is imagined to be fitted in an aeroplane and the brushes to be rotated to give central zero, the angle between the brush axis and the centre line of the aeroplane gives the angular divergence of the aeroplane's axis from magnetic N. and S. line.

Consequently the complete instrument consists of the generator, the central zero galvanometer, and a brush-control gear, which sets the brushes at an angle to the machine axis equal, but opposite in sense, to the divergence of the course which it is desired to steer from a N. and S. course.

The usual method of using the compass is to set this brush-control gear, which is in the form of a dial graduated in a manner similar to that of the usual magnetic compass, to the desired bearing, and then to steer the aeroplane so as to maintain zero on the galvanometer or steering indicator.

Although the generator can give zero output only with its brushes in a N. and S. plane, it is immaterial which brush is N. and which S. Therefore zero reading will be given with any setting of the brush-control gear on either the desired, or a precisely opposite course. But although this is the case, in the event of the course being reversed, the direction of the current generated by a given deviation from it will also be reversed, and consequently if the pilot deviates

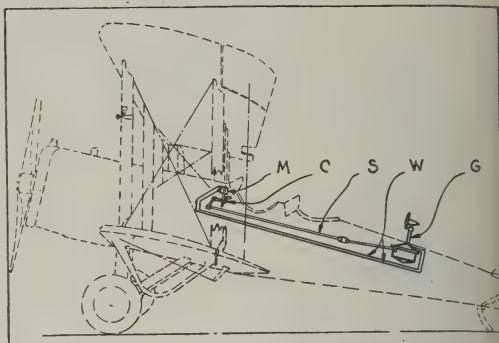


Diagram of the Pioneer Earth Inductor Compass: G. Generator, C. Controller or Course-setter, M. Indicator, S. Generator control shaft, W. Wires from Generator to Indicator.

to the right the indicator will deviate to the left, giving a clear indication that he is heading in the wrong way.

The generating element or armature is made either as a wind-driven, or an electrically-driven, instrument. It is connected by a pair of insulated wires to the indicator, and by a universally-jointed rod system to the course-setting control, and it may be placed anywhere within the aeroplane. It can therefore be removed from the proximity of the engine and of moving controls likely to disturb the local magnetic field. This generator has no magnetic field of its own (except, possibly, a very feeble one when the machine is far off its desired course), and consequently it does not, as the ordinary compass does, induce magnetism in nearby magnetic materials. It is thus practically free from one of the most serious defects of the ordinary compass.

The rotating armature forms in itself a gyroscope, and, with the addition of suitable damping devices, is completely stabilised and retains its correct position undisturbed by any acceleration of the aeroplane. It is unaffected by vibra-

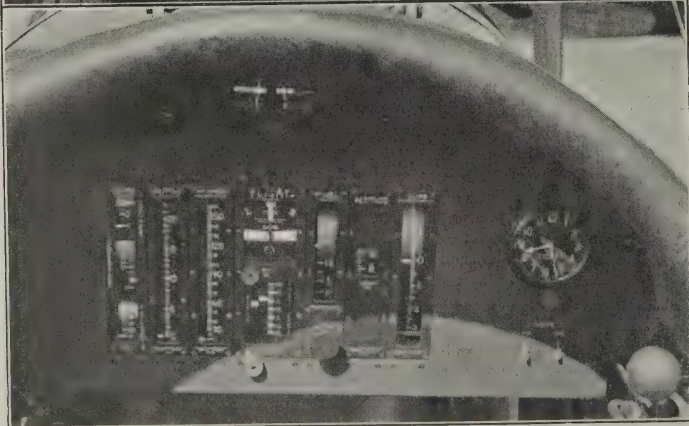
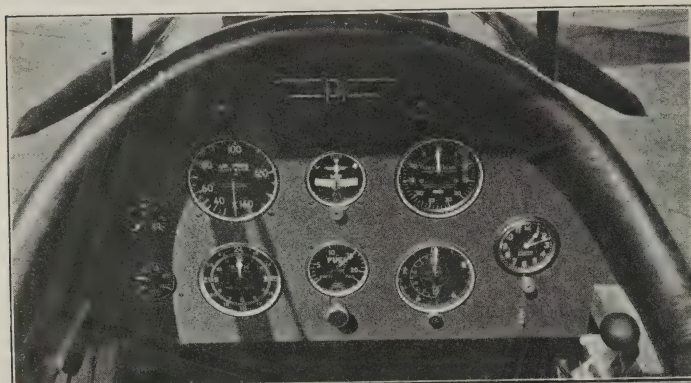
THE PIONEER DASHBOARD ARRANGEMENTS.—

The two photographs here reproduced show two arrangements of dashboards for an aeroplane produced by the Pioneer Instrument Co., of Brooklyn, New York. These dashboards are fitted to a Curtiss aeroplane of the J.N. type, which is used by this firm for instrument testing purposes.

The upper photograph, which is actually of the forward cockpit, shows Pioneer instruments of the usual round dial type. The instruments shown are, starting from the left: Top row—oil pressure gauge, air speed indicator, Pioneer turn indicator, and rate of climb indicator; Bottom row—radiator thermometer, rev. indicator, fuel gauge, altimeter, and clock. Below the clock is the dashboard lighting switch.

The lower photograph, of the rear cockpit installation, shows a type of instrument which has not yet been adopted in this country for aircraft work. The scales are arranged vertically round the edge of a sector of a circle—an arrangement which greatly reduces the space required for instruments on the dashboard—a matter of some importance in military aircraft. At the top centre is a compass, on the right a clock with instrument and navigation light switches below.

Starting from the left the instruments in the panel are: 1st (vertical) row, fuel gauge radiator thermometer, oil pressure gauge; 2nd row, rev. indicator; 3rd row, air speed indicator; 4th row, turn indicator (top) and clinometer; 5th row, fuel gauge; and 6th row, rate of climb indicator.



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tion, as there are no delicate moving parts in which movement may be induced.

In addition it is claimed that with this instrument much more accurate reading is possible than with the usual type. The course-setting indicator is graduated at 10° intervals, and the movable dial is divided as a vernier which provides 1° graduations and permits of setting to $\frac{1}{2}^\circ$. The indicator dial shows divergences from the set course of less than $\frac{1}{2}^\circ$ —which can certainly not be observed on any practical aeroplane compass of the ordinary type.

The Pioneer Earth Inductor Compass has been very extensively tested by the U.S. Army and Navy Air Services. They

were fitted to the aeroplanes used on the round-the-World flight, and are reported to have been extremely satisfactory. The ill-fated airship, *Shenandoah*, used a Pioneer compass, and her navigating officer, Lt. Rosenthal, reported that the compass was highly satisfactory, and permitted the maintenance of a more accurate course with less use of the helm than was possible with the usual type.

Such a result can be explained by the greater accuracy of reading possible, together with the absence of inertia in the inductor compass which should lead to a great reduction in the time lag or interval between the beginning of a deviation and the indication thereof.

THE FLYING CLUBS.

The London Aeroplane Club.

Report for week ending Jan. 30.

During the past week the weather conditions prevented any flying until late on Sunday afternoon, when we were able to get in 2 hrs. 10 mins., all of which was solo flying by the following members:—G. H. Craig, S. O. Bradshaw, O. J. Tapper, and N. Jones.

The Lancashire Aero Club.

Report for week ending Jan. 29.

Total flying time for the week 6 hrs. 50 mins., made up as follows:—Dual with Mr. Brown: Messrs. Anderson 50 mins., Crosthwaite 20 mins., Blagden 20 mins., Davidson 20 mins., Dickinson 15 mins., Dobson 10 mins.

Solo: Messrs. Dobson 40 mins., Twemlow 40 mins., Crosthwaite 40 mins., Hardy 30 mins.

Joy-rides: With Mr. Brown—Mr. Mathews 45 mins. With Mr. Goodfellow—Miss Bodenham 35 mins. With Mr. Scholes—Mr. Jordan 15 mins.

Test flights: 30 mins.

Sunday, Jan. 23, was the only respectable flying day during the week and flying on that date was unfortunately curtailed by the entanglement between the two serviceable Moths, as reported last week. The remainder of the period was apparently affected by the formation of a Lancashire Aero Club branch of the A.O.F.B. At any rate, Tornados, Typhoons and Blast(er)s were very much in evidence.

It appears to us that *The Club* is getting seriously left behind by its rivals. None of our members belong to the nobility or landed gentry, or own their own aerodromes or aeroplanes or anything like that. (Most of them are hard at work trying to pay the next instalment on the second-hand Cowley.) None of our members feel as safe in the air after 2½ hrs.' dual with Mr. Brown as they do on their own Auto-Wheels (though as a matter of fact, they are so, if not safer!). None of our members fly home to fetch their cameras (they're not allowed to, in case the baliff might seize the machine as soon as it landed!). Finally, none of our members treat each other to thrilling displays of formation flying!

It is true that Mr. Leeming often persuades people to fly near enough for him to "shoot" them with his Baby Pathé, but the only thrill about the performance is as to whether Mr. Leeming will fall out or not. It is also true that Mr. Goodfellow frequently brushes his wing-tips against other people's in a friendly way. This, however, is not looked upon as a treat, but merely as a bad and regrettable habit contracted during a mis-spent youth.

Altogether *The Club* is obviously in a bad way and one commends the matter to the immediate attention of the propaganda sub-committee (if any).

The Yorkshire Aeroplane Club.

Report for week ending Jan. 28.

Total time flown amounted to 4½ hrs. in nine flights as follows:—Solo, 3 hrs. 40 mins. Dual Instruction, 30 mins. Test, 5 mins.

Mr. Batcock was the only member who received instruction. The soloists were Messrs. Dawson, Fielden, Lax, Mann, Norway and Wood. Very little of interest in the flying line has taken place this week, the wind blowing almost continuously at gale velocity throughout the period. Nevertheless, Mr. Fielden, with his characteristic Yorkshire grit, was determined to brave the elements on Monday. He motored from his home at Skipton to Sherburn and took off in NN about noon, steering a course by way of Malton and back.

During his 70 mins.' flight he found it necessary to keep the Moth at an altitude of about 100 ft. owing to the low-lying clouds, and he states that at times he appeared to be almost skimming the telegraph wires bordering the main road to York, which he followed.

Mr. Fielden's passenger on this occasion was the Rev. O. Shuffrey, whose mind during the flight was no doubt too preoccupied with "heavenly" visions to fully appreciate the "earthly" ones he occasionally caught a glimpse of.—R. O. L.

The Midland Aero Club Ltd.

Report for week ending Jan. 28.

Total flying time 6 hrs. 50 mins.
The following members were given dual instruction by Flt. Off. Glover: C. Fellowes, F. Coxhill, S. H. Smith, G. Aldridge.
The following "A" Pilots made solo flights: R. L. Jackson, E. J. Brighton, H. J. Willis, W. Swann.

Passengers with Mr. Brighton: L. V. Mann, S. H. Smith.
A few words of thanks are due to Flt. Off. Glover for having so efficiently carried on the instructional work during Mr. McDonough's illness. Flt. Off. Glover carries with him the best wishes of those who have had the pleasure of meeting him at the Midland Aero Club.

The Hampshire Aeroplane Club.

Report for week ending Jan. 28.

Total flying time 3 hrs. 55 mins. Instruction flying 3 hrs. 5 mins. Solo flying 3 hrs. 30 mins. Test flights 20 mins.

The following members received instruction: The Hon. H. R. Grosvenor 50 mins., Lieut. P. D. Heinemann, R.N., 30 mins., Mrs. C. B. Fry, 30 mins., Messrs. E. V. Somerset 25 mins., R. S. Dickson 15 mins., W. P. Courtney 15 mins., E. P. Snowden 10 mins., and V. F. Nicholson 10 mins.

The soloists were V. F. Nicholson 15 mins., A. M. Keeping 10 mins., and S. Fry 5 mins.

No flying was possible on five days of the week owing to very high

winds. In fact, a Typhoon descended upon the aerodrome on Tuesday last, and although no damage resulted, it certainly left its impressions as reported in last week's issue of this journal.

A theory has been put forward by our meteorologist that these gales are the result of the very pronounced activities of members of the A.O.F.B., for it is known that the club numbers amongst its officials at least one Blaster and one Breeze Vertical.

Two of our pilot members sailed for China in the s.s. *Kinfauns* Castle on Saturday; they were Messrs. R. L. Preston and E. V. Preston, both subalterns in the Coldstream Guards. Although E. V. had had only three hours' instruction, he was a positively brilliant pupil, and we greatly regret that he was not able to complete his training before sailing.

We would like to offer our congratulations to Mr. Stephen Fry (who, by the way, is a son of the C. B.), upon having received his Royal Aero Club Aviator's Certificate. He is the first member who has been trained *ab initio* at the Hampshire Aeroplane Club to receive this ticket, although he now shares with Mr. R. V. Perfect and Mr. O. E. Simmonds the honour of having passed the qualifying tests for the "A" licence.—R. H. B.

The Newcastle-upon-Tyne Aero Club.

Report for week ending Jan. 30.

Total flying time for the week 14 hrs. 30 mins.—6 hrs. 15 mins. on LX and 8 hrs. 15 mins. on LX.

Dual 3 hrs. 30 mins. Solo (Training) 1 hr. 40 mins. "A" Pilots 7 hrs. 50 mins. Joy-rides with Mr. Parkinson 1 hr. 30 mins.

The gale which has blown down new buildings, uprooted trees, etc., has also interfered with flying on all but Sunday, though Mr. Hannary braved it for 15 mins. on Monday and Mr. Parkinson flew with a passenger also for 15 mins.

The wind abated slightly on Tuesday evening and allowed of another two hours' flying, but after that it was difficult to reach the aerodrome by road until Sunday, when a good turn-up of members enabled a good day's flying to be recorded.

The petrol store "took off" on Thursday and landed about a yards away from its foundations. Of course, pumps are now used by the Club so no harm resulted.

The following members flew under instruction with Mr. Parkinson: Messrs. Wardill, Turnbull, Bainbridge, Miesegaes and Thirlwell. Mr. Parkinson flew with "Joy-riders" for 1 hr. 15 mins. during the week. Solo: Messrs. Mathews and Bell.

"A" Pilots: Lord Ossulston, Mr. C. Thompson with Mrs. Heslop, Mr. R. N. Thompson with Miss Monkhouse and Mr. Percy. (It will be of interest to note that Mr. Thompson completed 100 hours' flying with the Club twelve months after taking up flying training.) Mr. Baxter Ellis with Miss Dunford, Mr. J. D. Irving with Mr. Campbell, Mr. H. Ellis with Miss Dunford and Dr. Dixon, Dr. Dixon with Mr. J. Bell, Mr. Forsyth Heppell with Mr. Westerdale, Lieut. A. P. C. Hannay.

The Australian Aero Club.

THE QUEENSLAND SECTION.

The Queensland Section, formed in 1919, has been recently reconstituted and a flying section has been formed. The Queensland and Northern Territory Air Services has been entrusted with the task of running two Light Aeroplane Clubs, one at Brisbane and one at Longreach. Quantas has purchased five D.H. Moths, two to be stationed at Brisbane and two at Longreach, with one in reserve. The two instructors will be Mr. C. C. Matheson and Mr. L. J. Brain.

It is believed that the company will receive a Government subsidy of £50 in respect of each successful graduate instead of £20 as in the case of other sections of the Australian Aero Club operating on borrowed Government equipment.

THE NEW SOUTH WALES SECTION (SYDNEY).

This section was the first to operate a Light Aeroplane Club in Australia. The summarised operations at the close of its first three months are as follows:—

Number of flights, 960. Total flying time, 306 hrs. 55 mins. (including 143 hrs. dual, 60 hrs. 30 mins. pupils solo, and 82 hrs. 15 mins. pilot members' flying). Nine members had qualified for their "A" licence and five others were flying solo.

This rapid progress reflects great credit on the sole instructor, Mr. Leggett, and his engineer, Mr. R. Beeston.

VICTORIAN SECTION (MELBOURNE).

The Victorian Section Flying Club began operations on Aug. 20 at Essendon Aerodrome and up to the end of October a total of 140 hrs.' flying (105 hrs. by pupils and 35 hrs. by pilot members) had been done on the two Club Moths.

On Oct. 18 Messrs. Ashley and Mulcahy qualified for their "A" licences and five other members were flying solo. The Club's instructor is Flt. Lt. Mustard and the ground engineer Mr. J. Hart.

VICTORIAN SECTION (GEELONG SUB-SECTION).

This sub-section is awaiting delivery of its flying equipment of Moths from the Minister of Defence and is in the meantime concentrating on the building of a shed and Club quarters and organising a series of monthly lectures.

SOUTH AUSTRALIAN SECTION (ADELAIDE).

The South Australian Section, originally formed in 1919, has been revived and is now negotiating with the Minister of Defence for the loan of Moth equipment for the formation of a Flying Club.

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 0; Tuesday, 11; Wednesday, 12; Thursday, 11; Friday, 8; Saturday, 10; Sunday, 1.

IMPERIAL AIRWAYS LTD.:

London—Paris; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam; Cairo—Karachi: Machines 18, passengers 78, freight 8 tons.

AIR UNION:

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K.L.M.:

Amsterdam—Rotterdam—London: Machines 9, passengers 8, freight 1½ tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 10, passengers 2.

SABENA:

Brussels—London: Machines 2, passengers 15.

PRIVATE:

Machines 0, passengers 0.

Total number of trips by British Machines, 18, carrying 78 passengers. Foreign Machines, 35, carrying 44 passengers.

Comparative Figures:

Week ending Jan. 30:

Machines, 53; Passengers, 122; Crews, 87; Total personnel, 209.

Corresponding week, 1926:

Machines, 58; Passengers, 119; Crews, 74; Total personnel, 193.

Corresponding week, 1925:

Machines, 47; Passengers, 97; Crews, 62; Total personnel, 159.

Corresponding week, 1924:

Machines, 58; Passengers, 112; Crews, 89; Total personnel, 201.

Corresponding week, 1923:

Machines, 29; Passengers, 52; Crews, 61; Total personnel, 113.

Corresponding week, 1922:

Machines, 22; Passengers, 42; Crews, 33; Total personnel, 75.

Corresponding week, 1921:

Machines, 13; Passengers, 8; Crews, 14; Total personnel, 22.

Croydon Notes.

The gales during the past week did not succeed in dislocating the air traffic to any great extent. The fog of Monday, Jan. 24, however, completely dislocated it, and no machine arrived at or departed from Croydon. This is rather curious, because on that day the Avro Alder-shot with the Beardmore Typhoon was being demonstrated at Southampton in quite good weather.

On that day, when coming out of London, Brooklands was quite clear of the fog, which raises the old question of having alternative landing grounds for use in fog or other adverse conditions.

On Friday last Mr. Barnard brought off one of the finest landings which have yet been seen at Croydon. He came in from Paris on an Argosy when the S.W. gale was at its height, and did an autogiro landing, without any run, on the tarmac in front of the Customs. Twenty men were needed to hold the machine when once it was on the ground, and he found taxiing the machine round to the hangars so difficult that he decided to take no such risk. Accordingly he took it straight into the air from where it had landed and put it down again, auto-giro fashion, outside its hangar door.

The difficulty of handling the machine on the ground shows up the defects of very lightly loaded machines, for a Fokker F.VIIa arrived at the same time and two men were found sufficient to handle it on the ground. This is certainly where the heavily-loaded thick wing scores, for the Junkers also was easy to handle on the ground.

The Goliaths, which are even more of the lightly-loaded species, passed out altogether during the gale and were unable to fly on the Friday.

What a pity it is that the Junkers machines are not fitted with Nimbus engines. The Germans have every intention of fitting British engines to these machines. A.D.C. Aircraft could install the Nimbus engines in a machine in less than a week actually on the spot. The aerodynamical aspects of the machine would not be altered in any way and the performance would be increased so that the machines would be the equal of the best now flying on commercial service.

Dr. Rohrbach at any rate does recognise the value of the Nimbus, for one understands that he intends fitting them to his machines.

M. Lowenstein, having temporarily finished with aircraft and being under doctors' orders, is anxious to sell his F.VIIa (Bristol Jupiter) and his F.VII 3m. (three Armstrong-Siddeley Lynx). There are several people in this country who would like to buy the machine, but up to now the Air Ministry refuse to grant a Certificate of Airworthiness to fly for Hire or Reward. This raises a very big question which will be dealt with at length in THE AEROPLANE in the near future.

The Fokker series of machines are however the outstanding successful series of commercial machines and during the past six or seven years have proved the soundness of their design and construction. Moreover, the Air Ministry have a Fokker F.VII 3m. of their own and so presumably they know all about its construction. And the machine can be bought for one-third of the price of a machine of similar characteristics built in this country.

If the idea in the Air Ministry's collective mind is that no foreign machines of any kind shall be sold in this country, one cordially agrees with them. But they should say so outright instead of giving a lot of trouble and expense and pretending to examine the machine with the firm intention of not passing it, as seems to be the present scheme.—G. D.

THE TURKISH AIR LEAGUE.

According to *The Times* the annual congress of the Turkish Aviation League, which has been sitting in Angora, has suggested and passed some novel resolutions intended to increase the revenue of the league.

The league proposes to print and sell all forms used in transactions between the Tobacco Monopoly, tobacco merchants and the producers. It also proposes to print all forms used in transactions between the Customs authorities and traders, judicial documents and all school books.

Another proposal is that the Tobacco Monopoly should deduct one cigarette from every box of 20 before the boxes are placed on the market. The amount thus saved would be paid by the Tobacco Monopoly to the league.

These proposals have not yet received the sanction of the Government. There is much enthusiasm in Turkey for aviation, but these means of extracting funds from the general public, as it is obvious that the Tobacco Monopoly will not consent to be the loser, do not meet with approval either from the majority of Turks or from foreigners.

BALLOON JUMPING.

A new form of aerial amusement has been discovered in America by Mr. C. R. Fairey, and rumour says that certain people in this country, including Sq. Ldr. Maurice Wright and Mr. F. P. Raynham, will practise it here.

Briefly the idea is to make a balloon of about 18 ft. in diameter which is attached by a harness to a man's shoulders. The man is then weighted with ballast until he weighs just about 4 lbs. positive weight. Therefore when he jumps he has only to overcome 4 lbs. gravity pull. It is said that in a calm a jump of 40 ft. in height can be made. The distance travelled in one jump will vary with the wind that is blowing.

The idea will be used mainly for amusement, though it will be remembered that with some variation it was used commercially by Winnie-the-Pooh in obtaining honey from bees who lived at the tops of trees.

THE NEGATIVE TAIL.

The Royal Commission for Awards to Inventors on Jan. 31 continued the hearing of the claim by Mr. Norman A. Thomson in regard to the invention of the "negative tail" for flying-boats.

At the previous hearing (Jan. 14) Mr. J. W. Whitehead for the Crown submitted that no evidence of novelty sufficient to justify an award had been produced, and evidence in support of this defence was given by Sq. Ldr. M. E. A. Wright (R.A.F. Reserve). Major Wright's evidence was concluded on Jan. 31, and was followed by evidence by Major A. Q. Cooper (late R.A.F.) to the effect that the Norman Thomson design of tail had not been considered in the design of flying-boats at Felixstowe.

The inquiry was adjourned till Feb. 7.

THE SUPERCHARGING OF ENGINES.

On Feb. 15 Mr. A. H. R. Fedden is to read a paper before the Institution of Automobile Engineers on "The Supercharging of Aircraft and Motor Vehicle Engines." The meeting will be held at the rooms of the Royal Society of Arts, John Street, Adelphi.

It is now fairly well known that Mr. Fedden has carried on much experimental work with the supercharged Bristol Jupiter engine, and it is hoped that interesting information of a type hitherto unpublished in this country may be revealed in this paper.

No definite information has been vouchsafed, but presumably those interested in the subject can obtain tickets for this meeting on application to the Institution of Automobile Engineers, Watergate House, Adelphi, W.C.1.

NEW COMPANY.

THE BRITISH SCHOOL OF FLYING.

The British School of Flying Ltd. was registered as a "private" company on Jan. 29, with a nominal capital of £100 in 18 shares. Objects:—To establish and maintain in London and elsewhere institutions for instructing and training persons in the science of aeronautics, and all other kinds of Engineering and aviation, and societies, constitutions or clubs for the benefit of pilots, observers, chauffeurs, or any persons connected with the aeroplane, airship, balloon or motor industry, trade or otherwise, etc.

The first directors are: S. C. H. Roberts, 16, Cathedral Mansions, Victoria Street, S.W. E. W. Walton, 41, West Kensington Mansions, W.14 (both directors of the British School of Motoring Ltd.).

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RECEIVERSHIP (RELEASE).

NORTHERN AIR LINES LTD.—E. Higgs, of The Riddles, Hatfield, ceased to act as Receiver or Manager on Dec. 31, 1926.

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RECEIVERSHIP (APPOINTMENT).

CENTRAL JOINERY CO. LTD. (formerly Central Aircraft Co. Ltd.).—S. E. Smith, of 4, Broad Street Place, E.C.2, was appointed Receiver on January 29, 1927, under powers contained in prior lien debentures dated June 28 and July 22, 1926.

PERSONAL NOTICES.

DEATHS.

CAMPBELL.—On Jan. 28, off the coast of Spain, as the result of a flying accident, Gordon Thursby Campbell, Lt., R.N., and Fig. Off., R.A.F.

Mr. Campbell was detached from the Royal Navy for duty with the R.A.F. in April, 1925. He underwent a course of flying instruction at No. 1 F.T.S., Netheravon, and a further course at the R.A.F. Base, Gosport, in 1925. In May, 1926, he was posted to D (Torpedo) Training Flight, Gosport. He was serving with the R.A.F. Unit in H.M.S. *Furious* at the time of the accident.

MEGGITT.—On Jan. 28, at Norbury, as the result of a flying accident, Flt. Lt. William Geoffrey Meggitt, M.C., R.A.F.

Flt. Lt. Meggitt joined the R.F.C. from the Welch Regt. Special Reserve during the War, 1914-18, and served with distinction. He was awarded the Military Cross in 1917 and the *Gazette* of Apr. 17, 1917, states:—"While one of the patrol engaging five hostile machines he drove down one enemy machine and then attacked another, which was seen to go down vertically. He had previously brought down three hostile machines."

Flt. Lt. Meggitt was posted to No. 14 Sqn. in Palestine in 1920 and was promoted to the rank of Flt. Lt. in January, 1922. In September, 1923, he joined the R.A.E., Farnborough, for a course of instruction, and in October, 1924, he went to Cambridge for the two years' course of Aeronautical Engineering. He was posted to Station H.Q., Upavon, in September, 1926, as a qualified engineering officer and was transferred to H.Q., Fighting Area, Uxbridge, last December.

SATTIN.—On Jan. 27, off the coast of Portugal, as the result of a flying accident, Arthur Sattin, Fig. Off., R.A.F.

Mr. Sattin joined the R.A.F. with a S.S. comm. in May, 1923, and was posted to the R.A.F. Base, Leuchars. In May, 1924, he joined No. 405 (Fleet Fighter) Flight, Donibristle. He was serving with the R.A.F. Unit in H.M.S. *Furious* at the time of the accident.

FORTHCOMING MARRIAGE.

PARKINSON-SUTTON.—The engagement is announced between Mr. W. F. Parkinson, R.A.F., only son of the late Mr. Arthur Parkinson and of Mrs. Parkinson, of Norwich, and Elsie May, youngest daughter of Mr. and Mrs. J. R. Sutton, of Bath, formerly of Clifton, Bristol.

BIRTHS.

COOPER.—On Jan. 28, at Long Field, Ingatestone, Essex, to Renée, wife of Arthur Quilton Cooper, D.S.C., A.F.C.—a son.

HOLT.—On Jan. 24, at 13, Cadogan Gardens, S.W., to Mollie, wife of Air Commodore F. V. Holt, C.M.G., D.S.O.—a son.

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INCORPORATING AERONAUTICAL ENGINEERING



Vol. XXXII. No. 6.

SIXPENCE WEEKLY.

Registered with G.P.O. as a Newspaper.

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AS SNOW THAT FALLS IN THE NIGHT.
AND ISN'T IT JOLLY TO JUMP FROM BED
AND FIND THE WHOLE WORLD WHITE?"

(A Reminiscence by G.D.)

FEB 20 1927

UNIVERSITY OF ILLINOIS



THE WEIGHT OF RESPONSIBILITY:—The temporary sheds at Croydon, which collapsed last week under the weight of snow and wrecked a D.H.54, and a Handley Page W.10. No doubt those who insured the machines will realise the true beauty in the above lines. These sheds, be it noted, were part of the accommodation provided by the Air Ministry for visiting aircraft, at a handsome price, at London's Only Air Port.

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ON AIR TAXI SERVICES.

Two or three years ago, and even earlier, one of the most active, if not perhaps one of the most paying, forms of Civil Aviation, was the running of air taxis. The old Air Transport and Travel Ltd., apart from their regular air line work, sent quite a lot of aeroplanes at haphazard on special trips all over the Continent. Later on, when the Aircraft Manufacturing Company and A. T. and T. Ltd. sank in their conglomerate ruin and the De Havilland firm emerged as a rather independent Phoenix from the ashes, the De Havilland Taxi Service upheld the reputation of British Aviation, and not only afforded opportunities for distinction to a number of our best pilots but showed all foreign nations that in the air, as in the past on the sea, British navigators were prepared to go anywhere at any time regardless of wind and weather.

The extraordinarily fine voyages made by Mr. Alan Cobham, Mr. F. L. Barnard, Mr. Hubert Broad, Mr. C. D. Barnard and Mr. Lawrence Hope, to such far distant places as Helsingfors, Prague, Warsaw and Malta, and sundry other trips to all the capitals of Europe, not only placed British aviators very high in the estimation of the World but demonstrated in the most practical possible way the value of rapid air transport to those who could afford to pay for it.

It was in fact air taxi-driving, in its most exalted manifestation of course, which provided the bridge for Mr. Alan Cobham, the World's record passenger-carrying joy-ride pilot of his day, to become Sir Alan Cobham, the World's famous air-trotter. For his lengthy trips all over Europe and Northern Africa with Mr. Sharpe, the star turn American passenger, proved clearly that Mr. Cobham was an extremely fine navigator as well as a very competent pilot and so gave confidence to those who were afterwards asked to finance his more ambitious undertakings.

THE SLUMP IN TAXIS.

Then for some curious reason, a year or rather more ago, there seemed to be a slump in air taxi work. At any rate there was not enough business going to make it worth the while of the De Havilland Company to devote much time or money to their taxi service.

It is true that anybody who really wanted to hire an aero-

plane for a special journey could always get one from the De Havilland Company, but among all their other activities, such as running the R.A.F. Reserve School, and their own Flying School, and helping very materially with the maintenance of the London Aeroplane Club, and building Moths in quantities, and the great achievement of producing the Hercules, as well as quite a number of interesting aeroplanes for the Royal Air Force, the firm did at any rate cease, as the movie people say, to feature the taxi service.

During these last two years, there undoubtedly has been much less air taxi work done than there was previously. The more enterprising illustrated papers certainly sent special aeroplanes to fetch special photographs on special occasions, but either they did not do it quite so often as during the preceding years or else they came to regard it as a more or less ordinary method of getting special photographs, and so ceased to make any particular song about it. And especially there were fewer big voyages by people of the quality of Mr. Sharpe, and fewer short hauls for people wanting to catch steamships at Southampton or Cherbourg or elsewhere.

Possibly the falling off in the big special trips may be due to the fact that the network of air lines all over Europe has grown to such an extent, thanks very largely to German enterprise. In these days, as our good friend Mr. Lester Gardner of *Aviation*, New York, demonstrated so conclusively, anybody who wants to do an air tour of the Continent, either for the fun of doing it or because he or she is in a hurry, can do it quite well by using the regular commercial air lines, which do work out cheaper than hiring an aeroplane all to oneself.

There was a certain number of people who did charter special machines, as is shown by the records in *THE AEROPLANE* from time to time of voyages by Mr. Dudley Travers and Mr. Leslie Hamilton. But there was not an increase in air taxi work to correspond with the increase in the amount of flying in every other form of aviation.

During the last two years the Air Force has done a vastly increased amount of flying,—an increase which in fact is very much greater in proportion than the increase in the number of accidents, in spite of all the agitation on that



IN ITS ELEMENT.—A Vickers Viking amphibian (Napier Lion engine), used as a taxi by Mr. Leslie Hamilton, alighting as a boat in four feet of snow on the frozen lake at St. Moritz. Those of the registration letters which can be seen would seem to suggest that Mr. Hamilton had had a restful journey.

account. The amount of air-line flying taking in the Continental lines as well as our only English line, has probably increased to quite as great an extent. And the amount of flying done by private owners and by the Flying Clubs in this country has also increased enormously. But air taxi work seems to languish.

SUPPLY AND DEMAND.

The other day one was talking to one of the wealthiest men in this country, who is also intensely interested in aviation, on this question of air taxis. He said frankly that the cost of hiring an air taxi is so high that, although it is not beyond the means of wealthy people, it is decidedly beyond what any sensible person, however wealthy, would pay for any form of transport. He said that he had done his best to encourage the use of air taxis among his well-to-do friends and that quite a number of them had inquired about the cost of flying to various places in the British Isles, such as to grouse moors in Yorkshire and in Scotland, and to not-too-far-away places on the Continent, but that the prices quoted had frightened them off doing business.

He did not suggest for a moment that the de Havilland Company or any of the other people who had been asked to quote their fares were trying to make an excessive profit. In fact, knowing quite a good deal about the subject, he admitted that the fares were quite reasonable considering the cost of running the machines. What he did suggest was that the fares ought to be reduced by producing cheaper machines which would cost less to run.

If one recollects rightly, the cost of hiring a D.H.50 is 2s. 6d. a mile. Now, as the D.H.50 is a four-seater, 2s. 6d. a mile works out per passenger at less than the cost of an ordinary London taxi. Even for two people and luggage is. 3d. per head per mile is not unduly expensive.

That would be all right if two people were making a circular tour and coming back to their original starting point. But the trouble comes in because the hirer also has to pay the same price for the machine coming back empty. And that means actually doubling the fare per mile.

Undoubtedly there ought to be the same increase in air taxi flying as in all other kinds of flying. And some day there will be. Meantime the problem before aircraft designers, constructors and operators is how to get the price down.

PRICE REDUCTION.

Merely reducing the fares is not likely to solve the problem. Reducing fares would certainly mean increase of business. But in any method of transport there is a point where running expenses cannot be reduced. And when that point is reached increased business merely means increased loss.

The problem is very like that of the London taxi-cab today. Some people argue that if the fare were reduced to 6d. per mile there would be so much increase of business that the taxi drivers' takings would be more than double what they are with the present 1s. a mile. But, according to a very experienced taxi-driver with whom one discussed the question the other day, these people all forget that even if the drivers did take more than double the amount of money they would have to do more than double the amount of driving to earn it, and that what with petrol, tyres and wear-and-tear a taxi-cab could not pay for itself at 6d. a mile.

In fact so emphatic was one's taxi-driving friend on the

subject that he said that if fares came down to 6d. a mile he would set light to his cab, draw the insurance money, and go and keep pigeons. Presumably he meant of the homing variety, which come back to the vendor after they have been sold.

The mere fact that the aeroplane, being also of the homing variety, has got to come home after it has been hired is the chief thing which prevents air taxi work from being a profitable undertaking at a reasonable price under existing conditions. But apparently even this would not stop air taxi work if only the machines themselves could be made for less money and if they could be induced to cost less for running expenses.

Therefore, it seems that the financial success of air taxi work depends on reducing both the initial cost and the running cost of the aeroplanes themselves. And to this extent the problem is very closely linked with that of producing the cheap aeroplane for the owner-pilot.

TAXI CAPACITY.

Obviously for taxi work the machine must be able to carry at least two people as well as the pilot, plus a moderate amount of luggage. Some people, one gathers, intend to run Moths for air taxi work. Up to a point this may be one successful way of running an air taxi at a profit, but it can only have a limited application.

Very few men, or women, want to hire an aeroplane for their own singular individual use. Almost anybody who wants to fly from one place to another, over any considerable distance, likes to have a companion, whether of the same or the other sex. Therefore, though a certain amount of taxi work will certainly be done with Moths, their application is bound to be limited. They have not even the capacity of the two-seat road-taxi, or jixi, as it is called in reference to our excellent Home Secretary, Sir William Joynson-Hicks.

The D.H.50, as one has often said, is about the most comfortable vehicle in the World in any sort of transport. But it is too expensive to buy and too expensive to run for ordinary taxi work. Apparently what is wanted is something much more in the nature of the D.H.51, which carries two passengers and a pilot quite comfortably, though its purchase price, thanks to the cost of the engine, would probably make its capital cost too high for a reduced taxi-fare.

Also, as far as running expenses are concerned, we really do need in this country something to compare, for sheer efficiency, with the American Wright-Bellanca. This machine, for the benefit of those who have forgotten, or never knew, carries six passengers and a pilot at 135 m.p.h., with the mere 200 h.p. of the Wright Whirlwind radial engine. If we could get our ordinary passenger machines to some similar figure of efficiency, that is to say 130 m.p.h. for about 30 h.p. per passenger, we might get nearer taxi work which would be financially successful.

FOREIGN COMPETITION.

Writing of the capital cost of taxi-machines naturally brings up the evergreen subject of the buying of aeroplanes or engines abroad at low prices so as to cut down capital charges in this country.

The statement was made in the Croydon Notes last week that Mr. Lowenstein, the Belgian financier, who for the past year or so has been running a whole fleet of aeroplanes for



AMERICAN PROGRESS.—The Johnson Twin-60 (two Bristol Cherub engines) demonstrating its quick take-off. This machine, designed and constructed by the Johnson Aircraft Corporation, of Dayton, Ohio, was described in "The Aeroplane" on Jan. 12. The machine shows real progress in that it is a low-powered, high-efficiency, twin-engined "pusher" biplane. With slightly higher power, say two engines of 60 h.p. each, and seats for three, it would make an excellent taxi-machine.

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For all the long-distance British Service flights in 1926, the Napier was selected. Flights were carried out from Cairo to Cape Town and back to England; England to Alexandria and back; and Cairo to Aden and back. On these flights a total engine mileage of 101,000 was flown without any mechanical trouble.

Commandante Franco used Napier engines on his flight from Spain to Buenos Aires when the South Atlantic was flown for the first time without change of machine or engines.

The First Prize in a competition held to discover the best German commercial seaplane was won by the only Napier-engined machine entered.

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the conveyance of himself and his friends, without hire or reward, is now wishful to sell his aircraft. The statement was further made that there are several people in this country who would like to buy his three-engined Fokker F.VII 3m. but that up to now the Air Ministry had refused to grant a certificate of airworthiness permitting this machine to fly for hire or reward.

One would-be purchaser asked the Department of Civil Aviation at the Air Ministry whether they would be prepared to grant an airworthiness certificate for the machine for this purpose if he bought it. The Air Ministry replied very courteously that they would be very happy to grant an airworthiness certificate if the machine could comply with the regulations as to inspection which are imposed on British aircraft.

These are that the design of the machine has to be approved in the first place in all its detail, and that thereafter it has to be inspected constantly while in process of construction, and that after that it has to be properly tested to see that it is up to the standard of airworthiness required in British built aircraft.

That, of course, is perfectly reasonable. Obviously we cannot in fairness to our own constructors, who have to have all their products inspected in such a way that the mere inspection by reason of delays and discussions and so forth, adds immensely to the cost, allow foreign-built aircraft of any kind to ply for hire or rewards in this country unless they have been put through exactly the same inspection and tests.

A CASE IN POINT.

Those who are "agin the Government,"—and generally they are of the psychological type who would be "agin the Government" no matter what the Government did,—argue that Fokker aeroplanes of all types have always been among the most reliable in the World, and that Fokker performances, and freedom from accidents, since they have been employed in Civil Aviation, prove that they are at least as good as any aircraft in this country, at any rate from the point of view of strength and solidity, if not entirely on performance.

One is quite prepared to agree that the Fokker machines of all types are among the best in the World. And the three-engined Fokker, apparently whether fitted with the Armstrong-Siddeley Lynx, as is that which has been purchased by the Air Ministry, or with the Wright Whirlwind, as are those which are in use in the United States, have

proved themselves to be an advance even on the Fokker single-engined machines.

Moreover, the continual use for something like ten years, practically without accident, by Mr. Anthony Fokker of welded steel tube fuselages, has proved beyond dispute the reliability of that cheap method of construction. In fact Mr. Fokker more than anybody else is responsible for the fact that in the United States all military aircraft have welded steel fuselages, although in this country they are not allowed by our official experts. Therefore nobody can pretend for a moment that the Fokker machine is not airworthy.

For that reason at first sight it does seem hard that a would-be commercial aviator cannot buy cheap foreign aeroplanes at a low price, with or without foreign engines, and get them certified as airworthy to ply for hire and reward in this country. But when one looks into the matter more closely one sees that the Air Ministry's policy is the only possible policy unless airworthiness certificates are to be abolished altogether.

THE JUSTIFICATION OF OUR POLICY.

So long as we have airworthiness certificates in this country they must be granted only to machines for whose design, construction and material the certifying Authority can vouch. And in order to vouch for those qualities the machines must be properly inspected in all their stages of design and construction by officials of the Air Ministry.

Now, if we are going to put British manufacturers to all that trouble and expense, obviously it would be unfair to certify as airworthy foreign machines which might or might not be according to the original specification which had been passed by our Airworthiness Department. We might say that we could trust the inspection officials of certain countries, or that we could trust the products of certain foreign manufacturers. But if we did we should be making invidious distinctions. And we might very well produce international complications if we instituted any such differentiation between one country or one firm and another.

We know perfectly well from experience that there are certain foreign firms and certain foreign countries whose products, or whose official inspectors, we could not trust. For we know that some of their products are definitely dangerous.

Therefore the only possible fair thing to do is to insist that all foreign aeroplanes and engines must be inspected under exactly the same conditions as are our home-made articles.



AT DELHI.—Left to right, Air Vice-Marshal Sir Geoffrey Salmond, K.C.B., K.C.M.G., D.S.O., Air Officer Commanding R.A.F. India; Mr. Wolley Dod, Reserve of Air Force Officers, who piloted the De Havilland Hercules (three Bristol Jupiter engines) from Aboukir to Delhi; The Lady Maud Hoare; Sir Samuel Hoare, Secretary of State for Air; with Major George Woods Humphrey, General Manager of Imperial Airways Ltd., and Mr. F. Mayer, of the Bristol Aeroplane Co. Ltd., who accompanied the Secretary of State on the voyage.

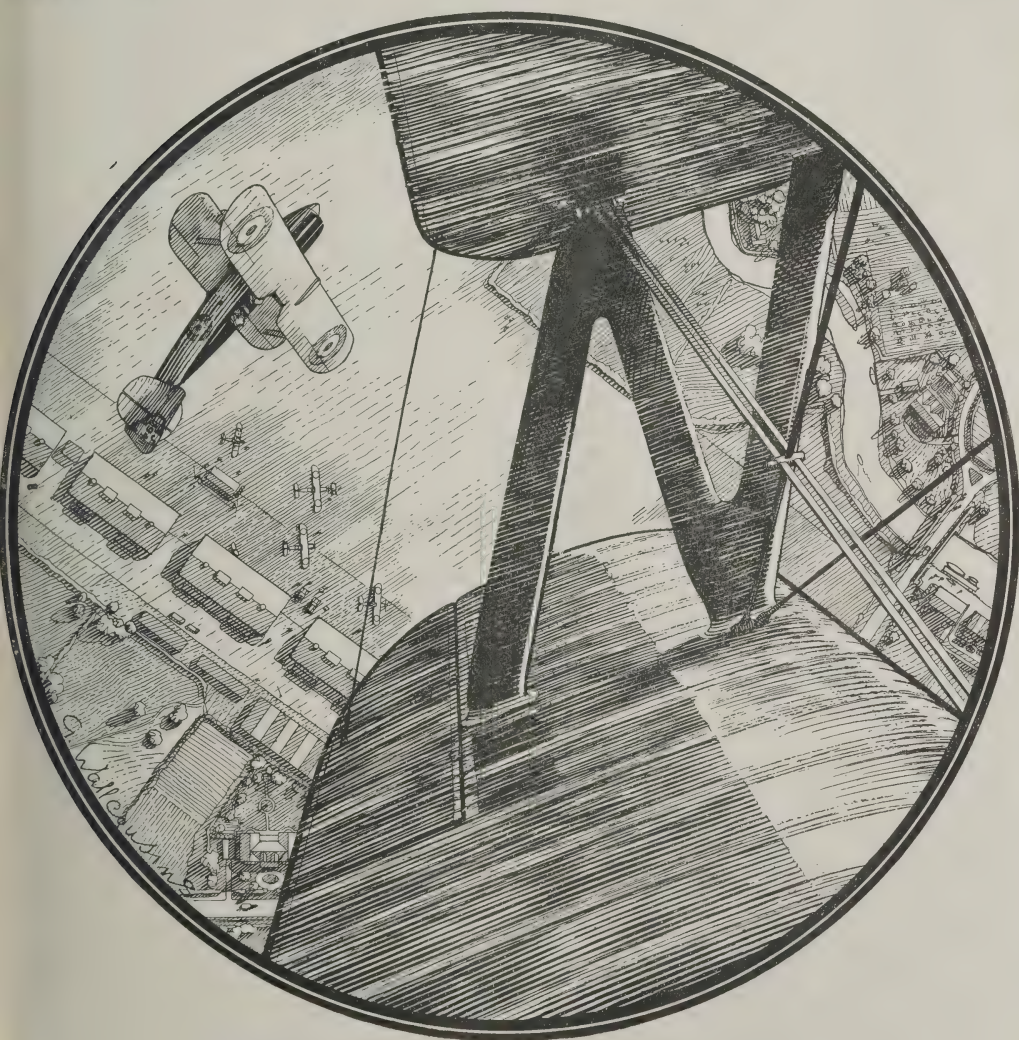
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

As an example of what one means one can quote the case of one particular foreign firm, which for international reasons must be nameless. That firm has produced one type of aeroplane which has proved itself to be one of the best in the World. If it had been anything else it could never have put up the performances which it has put up, nor could it have stood the buffeting which it had to endure in putting up those performances.

But one happens to know that a number of other aeroplanes made by that same firm, presumably under the ordinary official inspection of that country, have simply fallen to pieces in heaps, some of them in the air and others during ordinary rough usage on the earth. They were all beautifully finished jobs. But when they came unput it was found that main spars were built with unglued butt joints merely covered over and held together by ply-wood. And all sorts of other criminal bits of detail constructional work were disclosed in the crashes.

If the Air Ministry attempted the principle of giving airworthiness certificates to foreign machines on the passing of one sample machine by our Aeronautical Inspection Department, then we should open the door to all sorts of dangers of precisely that kind. Therefore it is quite obvious that if we are going to maintain the high reputation of British commercial aircraft, which is already recognised all over the World, and if we are going to have our Airworthiness Certificate recognised everywhere as being equivalent to an "A1 at Lloyd's" Certificate in the shipping world, we must stick to our present regulations, or something very like them.

PRIVATE OWNERS' AIRCRAFT.

There is something to be said in favour of abolishing regulations for privately owned machines which do not play for hire or reward. If a man likes to fly an unsafe machine and break his own silly neck, that is his own funeral. The odds are very great indeed against his actually falling onto anybody else and doing any material damage.

Though the State has a right to prevent people from committing suicide, it does very little in that direction so far as modern motorists are concerned, and it takes very much

AN AIR TAXI SCHEME.

On Dec. 31, 1926, the firm of Air Taxis Ltd. was registered, and the fact should be noted by all those who desire to promote air-mindedness among their friends. The chief of the firm is Mr. Lawrence Hope, who has been a commercial aeroplane pilot practically ever since commercial aviation began in 1919.

Mr. Hope's fleet consists at the moment of two D.H.9bs., that is the old D.H.9 type converted into a three-seater, with Siddeley Puma engines, one D.H. Moth with a Cirrus engine, and one Martinsyde with a Puma engine. Also two D.H.50s. with Puma engines are being built to add to the fleet.

The fares will be 2s. per mile for the D.H.50s. and 1s. 8d. per mile for the Moth, but the firm hope to reduce this latter price to 1s. a mile at a later date. The Martinsyde will not be for hire in the ordinary way, as she is being maintained exclusively for press work, as a high-speed machine which will not only convey press-photographs rapidly but will be capable of getting into and hopping out of small fields.

In the course of the last few years Mr. Hope has done a great deal of this press-photograph transport, with the standard D.H.9, and he remarked recently that it was surprising how many small fields a pilot encountered on these jaunts. Not only had he frequently to fetch the photographs from places where there were no proper aerodromes but, in the endeavour to get press pictures through regardless of weather in which ordinary passenger machines would never start, the pilot was often forced to land in open country.

One of Mr. Hope's comparatively recent trips, for the De Havilland Company, was on the occasion of the Belgian-Swedish Royal wedding. He flew from Malmo to St. Ingelvert, where he handed over his pictures for a London paper to a machine which was waiting for him there. Then he flew to Cherbourg to hand over another bunch of pictures to catch an outgoing Atlantic liner. And then he flew back to Brussels to take over pictures of the ceremonies there and bring them direct to London.

Mr. Hope says that he has enough newspaper contracts in hand to keep one machine going for the next two years.

Another job which Air Taxis Ltd. have in hand is that of photographing every town in Great Britain for a famous newspaper. For this job one of the D.H.9s. will be used.

Yet another of the activities already arranged for Air Taxis Ltd. is a quantity of air survey work in connection with housing schemes. During last year Mr. Hope, in conjunction with Aerofilms Ltd., which is the Aircraft Operating Company Ltd., did surveys in the vicinities of Doncaster, Finchley, Liverpool, Bristol, Cardiff and other towns and cities. It was then proved to the satisfaction of the corporations concerned that an air survey could supply in a fortnight information which would have taken at least six months to do by ordinary ground survey methods.

too much interest in protecting would-be aviators against their own folly. But for machines used for public services it cannot be too careful.

Consequently one is all in favour of sticking to our Airworthiness Certificate Regulations for Public Service vehicles. The travelling public must be protected if we are to induce them to travel by air.

EDUCATING THE EXPERTS.

On the other hand, without in any way relaxing the thoroughness of our inspection, our self-appointed Technical Experts at the Air Ministry might do a good deal to decrease the cost of production of our commercial aircraft. And probably the first and most necessary step in that direction is the education of the Experts themselves.

There are all sorts of ways in which the cost of the production of aircraft could be reduced without in the least reducing the safety of the machines or engines. But so long as our Government Experts stick in the same old grooves, and refuse to learn anything outside of what they have learned by pure rule of thumb during the War 1914-18, aircraft constructors are not likely to be able to reduce their production costs very much. That matter of the prejudice against steel-tube fuselages is merely one example of official ignorance and obstinacy.

To sum up briefly, what we want in order to get air taxi fares down to a figure which will at the same time attract passengers and leave a profit for the operators, are (A) Reduced cost of production of aeroplanes and engines, by way of increased intelligence on the part of our aircraft designers and our Air Ministry technicians, and (B) decreased cost of operation, by means of more efficient aeroplanes, and also smaller aeroplanes, which are matter almost entirely for our Trade designers.

Obviously these are only matters of common sense. But a common sense is about the most uncommon of human attributes, we are not likely to see air-taxi services competing seriously with other methods of transport for some little time to come.—C. G. G.

With such activities as these already booked, Air Taxis Ltd. should be able to survive even without much patronage from the flying public. But with the growing interest in aviation generally, and the reduction of fares, it seems probable that quite a good deal of ordinary taxi work will be forthcoming.

Incidentally it is worth while noting that the name Air Taxis Ltd. was suggested to Mr. Hope by Air Vice-Marshal Sir Sefton Branner when the general scheme for a firm devoted entirely to air taxi work was submitted to the Director of Civil Aviation.

It is satisfactory to note that Air Taxis Ltd., though an entirely independent firm, are working on an amicable arrangement with the De Havilland Company. Air Taxis Ltd. have leased one of the De Havilland sheds at Stag Lane to house their taxi fleet. And arrangements have been made with the De Havilland Company to do all the major repair and overhauls which may be needed. Therefore the firm's customers are assured of the very best and most reliable workmanship and maintenance.

As to pilots, Mr. Hope has engaged as his permanent pilot-assistant, Mr. V. N. Dickinson, who has had a very large amount of experience as an air-line pilot. In addition Air Taxis Ltd. will have a call on the services of Mr. C. D. Barnard and Mr. A. B. Gaskell, both of whom have been De Havilland pilots for some years.

Thus it may be seen that Air Taxis Ltd. start with every prospect of doing well. One wishes the enterprise not only financial prosperity but a great success in helping to make the British public air-minded.—C. G. G.

NEW WORLD'S SEAPLANE SPEED RECORDS.

The *Fédération Aéronautique Internationale* has homologated the speed record put up by Major Mario di Bernardi at Hampton Roads, Norfolk, Va., on Nov. 17, together with the same pilot's speed over 100 kms. which he made in the course of the Schneider Trophy Competition, also held at Hampton Roads on Nov. 13, 1926.

The maximum speed for seaplanes now stands at 476.61 km.p.h. (298.873 m.p.h.) and the speed over 100 kms. at 399.423 km.p.h. (248.198 m.p.h.) representing increases of 21.179 and 21.596 km.p.h. respectively over the previous records held by Lieut. J. H. Doolittle, U.S.A.C.

The new records were made by a serving officer of the Italian *Regia Aeronautica* flying a Macchi 39 seaplane fitted with an 800 h.p. Fiat engine, and were the result of very creditable Italian enterprise.

Nevertheless, as the records were made over United States water they are credited by the F.A.I. to the United States.

This seems to be distinctly unfair, and it would appear to be about time that the ruling responsible for this should be altered so as to give credit for the accomplishment to the actual accomplisher, and not to the innocent soil or water over which the accomplishment is made.

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THE BURT CUFF-VALVE FOR AIRCRAFT.

The Continental Motors Corporation of Detroit, Mich., have produced a nine-cylinder radial air-cooled engine, the first specimen of which was shown on the stand of this company at the New York Automobile Show on Jan. 8-15, 1927.

So far the engine has not been tested and few details concerning it are available.

The most interesting feature of the engine is the fact that it incorporates the single-sleeve, or "Cuff," valve mechanism which was invented by Mr. Burt, of Glasgow, and is commonly known as the Argyll-type valve.

Its power is rated at 220 h.p. for a total weight of 475 lb. The bore and stroke are $4\frac{1}{2}$ inches by $5\frac{1}{2}$ inches, giving a total cylinder displacement of 787.25 cubic inches.

It is understood that preparations are being made for the commercial production of this engine as soon as it has undergone tests.

Mr. Burt and one of his sons visited the office of THE AEROPLANE during the War 1914-18 and then showed one how suitable the mechanism was for air-cooled engines. One is glad to see the idea being tried, after such long delays, and one hopes to see it succeed.—C. G. G.

A COURTESY VISIT.

On Jan. 24 twelve P.1s of the 1st Pursuit Group, U.S. Army Air Corps, arrived at Ottawa on a visit to the R.C.A.F. They landed on the ice on the Ottawa River near the Parliament Buildings, and were officially welcomed by Lord Willingdon, the Governor-General, Lady Willingdon, and the Headquarter Staff of the R.C.A.F.

On Jan. 25 they flew from Ottawa to Montreal in unfavourable weather and were forced to land by snowstorms.

After being delayed in Montreal several days by heavy weather they left for Buffalo on their return journey, but nine of the machines were caught in a blinding snowstorm and were forced down onto the frozen St. Lawrence River, six miles from Clayton. The three machines of the last flight to leave Montreal had to turn back, and they landed on Lake St. Louis at Point Eclair, where they stayed until the storm was over.

The visit, which was made to demonstrate the mobility of a Service squadron under Winter conditions, was successful. All machines were fitted with skis, and in spite of the very heavy conditions, which compelled the squadron to make several emergency landings, all returned to their base without having any other form of trouble.

While in Canada they were the guests of the R.C.A.F. and it is expected that a Canadian squadron will return the visit some time during the spring.

THE R.Ae.S. HOUSE DINNER.

On Feb. 7 the Royal Aeronautical Society held its first House Dinner, by courtesy of the Royal Aero Club, at the Royal Aero Club-house. Col. the Master of Sempill was in the Chair and the Guest of Honour was Air Vice-Marshal Sir John Higgins, K.B.E., C.B., D.S.O., A.F.C., the new Air Member for Supply and Research on the Air Council.

Air Commodore J. G. Weir, C.M.G., C.B.E., F.R.Ae.S., opened a discussion on "Comfort in Air Travel." The entertainment took place on Monday night and THE AEROPLANE goes to press on Tuesday mornings, so one cannot possibly report or comment on the proceedings this week.

As the subject is one of considerable importance and a number of people with some knowledge of the subject expressed their opinions on it, one proposes to deal with it next week. It should then be particularly apposite in view of the return of Sir Samuel Hoare from India on the day of which THE AEROPLANE will appear.

THE AIR SURVEY CO.'S ACTIVITIES.

Mr. R. C. Kemp, the Managing Director of Air Survey Co. Ltd., sailed for India, Burma and the Federated Malay States on Feb. 4. It is expected that he will be away for six months, during which time he will be fully occupied controlling and supervising the Company's many activities in the East and in arranging further contracts.

Col. Ryder, C.B., C.I.E., D.S.O., the Chairman of the Company, and late Surveyor-General of India, has been in that country for the past two months.

Good progress has already been made with the latest survey at Chittagong in Bengal which is over an area of 800 to 1,000 square miles and is being covered by vertical photographs.

This survey is of great interest owing to the fact that it is the first large contract that has been undertaken exclusively for revenue and settlement purposes. It is satisfactory to note that the advantage resulting from the work done by the Air Survey Company is being generally recognised.

It is expected that the field operations at Chittagong will be completed by the end of February, when a move will be made to the Federated Malay States and Straits Settlement in order to carry out further contracts for a large-scale plan of Georgetown, Penang and other surveys.

During the absence of Mr. Kemp in the East, Mr. F. P. Raynham, who has recently returned from Borneo, where he carried out and completed surveys on behalf of the Company of two large areas, and who is now a Director of the Company, will be in charge of the Company's affairs in London.



AN ALL-PURPOSE MACHINE.—A D.H.9, with Puma engine and Short floats, used by the Air Survey Co. Ltd. for survey, mail and taxi work in Sarawak, British Borneo, and the Malay States.

Blackburn

BLUEBIRD



EXTRACTS FROM A PILOT'S DIARY RETURNING FROM A PLEASURE CRUISE ON THE CONTINENT

Dec. 12th. Heavy mist through which we could just see about half way across the aerodrome. We decided to push on to Beauvais where the fog was reported to be less dense.....had we been in any other machine than the BLUEBIRD I doubt whether we should have done so. Its low stalling speed, combined with the comfortable cockpit and confidence given by the occupants sitting side by side & being able to talk to each other, made the world of difference, & tended to make one forget the usual uneasiness one feels when flying under such conditions.

Arrived Abbeville 14.00. Having decided to stop the night we picketed down the BLUEBIRD & left it in the open with a sheet over the engine & cockpit.

The GENET started up without the slightest trouble notwithstanding the fact that it had stood out all night. We left Abbeville 11.35 after putting 4 gallons of "B P" petrol into the tank to make certain of reaching Lympne without running short.

We found Cape Grisnez with clouds at 100 ft & St. Ingvert getting clearer; we circled around the aerodrome & then made a course across the Channel.

We reached Folkestone twenty minutes later..... During the whole trip not a single thing was done to the machine or engine excepting in the latter case, to clean the plugs.

It was a very enjoyable trip & we are very keen on repeating it in fine weather.

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THE ROYAL AIR FORCE.

The London Gazette.

Feb. 1.

GENERAL DUTIES BRANCH.—Ronald Harry Griffith is granted a S.S. comm. as a Plt. Off. on probation with effect from and with seniority of Jan. 24. The following are granted S.S. comms. as Plt. Offs. for four years on the active list, with effect from and with seniority of Jan. 17:—J. G. Foreman, C. Sells, L. C. L. Murray, E. H. Irving, F. Townsend, A. A. Kochi, and C. H. A. Colman.

The following Plt. Offs. are promoted to the rank of Flg. Off.:—William George Wainwright Fahey (Nov. 30, 1926); Ronald Christopher Wilson, Charles Henry Godwin Bremridge (Jan. 30).

Flg. Off. Howard John Thomas Saint, D.S.C., is transferred to the Reserve, Class A (Feb. 1). Flg. Off. Alison Wenley Daly is transferred to the Reserve, Class A (Dec. 9, 1926). (Substituted for the notification in the *Gazette* of Dec. 7, 1926.)

Plt. Off. Verney Tension Norwood resigns his S.S. comm. (Feb. 2). The S.S. comm. of Plt. Off. on probation Stanley Charles Bell is terminated on cessation of duty (Feb. 2).

ACCOUNTANT BRANCH.—Plt. Off. on probation Robert Cassels is confirmed in rank and is promoted to the rank of Flg. Off. (Dec. 7, 1926).

MEDICAL BRANCH.—Flt. Lt. George Ross Nodwell, M.B., is transferred to the Reserve, Class D.1 (Jan. 29). Flg. Off. Vivian Paul Ellis (Temp. Lt., General List, Army, Dental Surgeon) relinquishes his temp. comm. on completion of service (Jan. 8). (Substituted for notification in the *Gazette* of Jan. 14.)

RESERVE OF AIR FORCE OFFICERS.—The following Flg. Offs. relinquish their comms. on completion of service:—Frank Joseph Magee (Oct. 24, 1926); Arthur Knox, William Beresford Mortimore (Jan. 30).

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—The undermentioned to be Plt. Off.:—No. 663 CITY OF EDINBURGH (BOMBING) SQUADRON.—A. R. H. Miller (Feb. 1).

Appointments.

Week ending Feb. 7.

GENERAL DUTIES BRANCH.—Squadron Leaders A. S. C. S. MacLaren, O.B.E., M.C., D.F.C., A.F.C., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 18/12. A. H. Peck, D.S.O., M.C., to No. 6 Armoured Car Coy., Iraq, 14/1. W. S. Caster, M.C., to R.A.F. Depot, Egypt, 19/1. I. T. Lloyd, to No. 480 Flight, Calshot, 7/2.

Flight Lieutenants D. Colver, D.F.C., to H.Q., Egypt, 10/1. J. A. G. Haslam, M.C., D.F.C., to No. 13 Sqn., Andover, 9/2. L. R. Briggs, to R.A.F. Base, Gosport, 8/1. W. E. G. Mann, D.F.C., to No. 6 Sqn., Iraq, 17/1. D. S. Allan, to R.A.F. Training Base, Leuchars, 14/1. H. H. Down, A.F.C., to R.A.F. Base, Calshot, 28/1.

Flying Officers J. E. W. Bowles, to R.A.F. Training Base, Leuchars, 17/1. J. N. D. Anderson and W. H. O. Rumfit, to R.A.F. Training Base, Leuchars, 10/1. H. A. M. Weir, to R.A.F. Training Base, Leuchars, 24/1. L. H. Stewart, to R.A.F. Training Base, Leuchars, 5/2. M. F. Morris, to No. 1 School of T.T. (Apprentices), Halton, 13/1. N. T. Goodwin, to Record Office, Ruislip, 1/2. E. A. H. Fisher, to H.M.S. *Argus*, 26/1. R. B. Harnden, to R.A.F. Depot, Egypt, 16/1. M. W. J. Boxall, to No. 30 Sqn., Iraq, 18/1. M. A. Platts and H. Thomas, to No. 216 Sqn., Egypt, 16/1. R. H. Barlow, to remain at No. 9 Sqn., Manston, instead of to R.A.F. Training Base, Leuchars, as previously notified. V. J. Sofano, to H.Q., Transjordan and Palestine, 12/1. W. J. Kelly, to No. 9 Sqn., Manston, 17/1.

Pilot Officers E. B. Steedman, to R.A.F. Depot, Uxbridge, instead of to No. 1 F.T.S., as previously notified, 4/1. J. E. A. Binnie, to R.A.F. Base, Calshot, on transfer to Home Estab., 17/2. I. S. T. Brown, to No. 115 Sqn., Netheravon, on transfer to Home Estab., 17/2. W. E. W. Grieve, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 8/1. H. E. Milton, to No. 29 Sqn., Duxford, on transfer to Home Estab., 17/2. A. W. H. Nelson, to No. 16 Sqn., Old Sarum, on transfer to Home Estab., 17/2.

STORES BRANCH.—Flying Officers H. Sleight, to No. 100 Sqn., Spittlegate, 27/1. J. W. Mitchell, to No. 602 (City of Glasgow) Sqn., Renfrew, 12/1.

MEDICAL BRANCH.—Flight Lieutenants J. A. Perdrau, M.D., to Station H.Q., Spittlegate, 1/2. (Hon. Sq. Ldr.) C. A. Meaden, to R.A.F. Station, Duxford, 1/2. R. L. C. Fisher, M.B., to Station H.Q., Kenley, 1/2. F. W. G. Smith, M.B., B.A., to H.Q., Air Defence of Great Britain, Uxbridge, 12/2.

Flying Officers E. J. Jenkins, to No. 47 Sqn., Egypt, 12/1. P. H. Perkins, to R.A.F. Station, Worthy Down, 1/2.

Fatal Accidents.

The Air Ministry regrets to announce that as the result of a collision in the air off Benghisa Point, Malta, on Feb. 1, between a Fairey Flycatcher machine of No. 402 Flight and a Fairey 3 D. machine of No. 441 Flight, John Varnton Mills, Lient., R.N., Flg. Off., R.A.F., the pilot and sole occupant of the Fairey Flycatcher aircraft, was killed. Flg. Off. Alexander Harold James Howlett, the pilot of the Fairey 3 D. aircraft was uninjured, and his passengers, Wing Cdr. Gilbert George Herbert Cooke, D.F.C., A.F.C., and No. 61875 F-S. Arthur Edmond Laurence Worster, sustained only slight injuries.

The Air Ministry regrets to announce that as the result of an accident at Upavon to a Woodcock aeroplane of No. 3 Squadron, on Feb. 2, 1927, Plt. Off. Gomer Flower Lewis, the pilot and sole occupant of the aircraft, was killed.

[The evidence at the inquest on Feb. 3 showed that when at a height of 800 ft. he apparently throttled down the machine, then made two turns, the second ending in a spin, straightened out, and nose-dived to the ground.]

The Air Ministry regrets to announce that as the result of an accident at Rottingdean, Sussex, to a Grebe aeroplane of No. 56 Squadron, Biggin Hill, on Feb. 4, Plt. Off. Sidney Arthur Vernon Hyans, the pilot and sole occupant of the aircraft, was killed.

The Secretary of State for Air.

Sir Samuel Hoare, accompanied by the Lady Maud Hoare and Sir Sefton Branner, Director of Civil Aviation, left Delhi in the Imperial Airways Hercules *City of Delhi* on Feb. 1, and arrived at Karachi the same day.

On Feb. 2, Sir Samuel Hoare spent the day inspecting the Royal Air Force Units at Karachi and the airship base which is under construction there.

On Feb. 3 the *City of Delhi* left Karachi and arrived at Jask on the Persian Gulf, and left the same day. The party arrived at Linga on Feb. 3, and Bushire on Feb. 4.

On Feb. 5 they flew to Basra and on to Baghdad.

Sir Samuel and the Lady Maud Hoare arrived in the *City of Delhi* at Heliopolis, Cairo, on Feb. 7, from Baghdad, having been delayed at Amman by bad weather.

The Sheerness Course.

The following officer of the R.A.F. has joined the Army Senior Officers' School at Sheerness for the 23rd course:—Sq. Ldr. R. P. Willock.

R.A.F. Apprentice Clerks.

The Air Ministry announces that 60 vacancies exist in the R.A.F. for well-educated boys, between the ages of 15½ and 17 to enter as Apprentice Clerks. Approximately 40 of the posts will be filled by means of an open competition, which will be held by the Civil Service Commissioners in April at various centres, and the remaining 20 by direct entry of boys who have obtained an approved school certificate. Successful candidates will be required to complete a period of 12 years' regular Air Force service after reaching the age of 18, in addition to the training period. At the age of 30 they may return to civil life or may be permitted to re-engage to complete time for pension.

Detailed information regarding the apprentice clerk scheme can be obtained from the R.A.F., Gwydyr House, Whitehall, London, S.W.1.

Boys entered under this scheme undergo a two years' course of training in clerical duties, typewriting, shorthand, book-keeping and practical office routine, during which time their general education is continued under a staff of graduate teachers.

The Cranwell Magazine.

The contents of the current issue of the R.A.F. Cadet College Magazine might be divided into three sections—past, present and future.

To the past section could be assigned Mr. C. G. Grey's article on *Flying in the Early Days*, a comprehensive, if somewhat meandering survey of aviation in the years from 1908 to 1914. Mr. Grey has shown praiseworthy restraint in avoiding the subject of future wars and has entirely omitted any caustic comment on the habits and peculiarities of our seafaring brethren.

Also to the past belongs *Air Fighting*, some of the experiences during 1914-18 of Wing Cdr. W. S. Douglas, M.C., D.F.C., who was with No. 2 Squadron, R.F.C., in the early days of 1915.

A long and very interesting review of Col. T. E. Lawrence's book, *The Seven Pillars of Wisdom*, by the Editor, is entitled *A Great Book* and also tells of days that are gone, as does *Reminiscences of a Command Depot*, by Capt. W. H. R. Somerset.

Under the present should come two chapters of *Aeronautics* by the late Flt. Lt. H. R. Hancox, reprinted from *Punch*, *The R.A.F. Flight to the Cape*, by Flt. Lt. P. H. Mackworth, D.F.C., *A Visit to Abyssinia*, which is anonymous, and *Fox Hunting*, by Col. Vernon Willey, D.S.O., M.F.H. There are also some excellent verses and illustrations.

The part devoted to the future, by E. R. L. C., must be quoted in full:—

"per arja ad astrer"!
 i want to be a airman
 a airman like my pa
 i want to do sum darcenr stunts
 unkritized by ma
 i want to join the airforce
 an flote around the sky
 i bet i'll make em all sit up
 if i begin to fly.
 i want to ride in "dee aitchines"
 in "aaveros" "snydes" and "bristles"
 an all chokfull of bomms an things
 an poysongass an pistoles
 but no one takes no notice
 and so i'll have to wate—
 it's bad luck on a feller
 wen a feller's only 81

Which does truly indicate the outlook of the healthy youngster of that age.—C. M. MCA.

ROLLS-ROYCE

THE BEST IN THE WORLD

Three Dornier-Wal Flying Boats, equipped with Rolls-Royce Engines and belonging to the Spanish Military Forces, have recently flown from the North Coast of Morocco to Fernando Po in Spanish West Africa

Starting from Melilla, these machines flew by way of Casablanca, Las Palmas and Lagos, the total distance being
4,500 miles

In the flights across the North and South Atlantic, and to India, South Africa, and Australia, Rolls-Royce Engines were the first to accomplish the tasks

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A SERVICE ENTERPRISE.—The Halton "Mayfly," which does. The H.A.C.1, built by the Halton Aero Club, which is composed of all ranks of No. 1 School of Technical Training, R.A.F. It was designed by the School Educational Staff, and built in the workshops, largely by the Apprentices, with the help and under the supervision of their Officers, N.C.O.'s, and Civilian Instructors. The funds of the Club have been raised by 5s. and 2s. 6d. shares, and the Apprentices alone have voluntarily subscribed over £170 in this way. There are over 1,100 members of the Club.

The Halton Aero Club Machine.

Former Aircraft Apprentices at Halton who are now serving with other Units will be interested to hear that H.A.C.1 (or "Mayfly") the aeroplane designed and constructed by the personnel at Halton, made a successful first flight at Halton on Feb. 1. The machine was piloted by Flt. Lt. Trench, who expressed complete satisfaction with its performance.

A History of Eastchurch.

A short history of the Eastchurch Air Station, Isle of Sheppey, from 1909 to 1926, is now in course of preparation and copies, 9d. each, postage 2d., may be had next week from Flg. Off. R. H. W. Empson, R.A.F., Eastchurch, or from THE AEROPLANE, 175, Piccadilly.

All profits on the sale of the book will go to the R.A.F. Memorial Fund.

R.A.F. SPORTS AND PASTIMES.

Rugby Football.

Royal Air Force v. Bath.—The R.A.F. were beaten by Bath at Bath on Feb. 5 by a goal and two tries (11 points) to two goals (10 points).

The Air Force side is beginning to show distinct signs of becoming a team, but there is still room for improvement. In the Bath match the front row of the scrum was still too high and the heeling out was not clean enough. Behind the scrum there is a lack of speed on the left wing and too much knocking-on in the whole three-quarter line. The full-back was cool and level-headed, but he must realise that he cannot afford to let the ball bounce. The chances are only about one in four that it will bounce in the right direction and any of the other three chances may mean a try against his side.

The game against Bath started with a mass attack by the Bath forwards which was checked on the Air Force twenty-five. The Air Force got the ball from the scrum but Massey was tackled with the ball and Bath forced their way up on the left wing. It seemed obvious to the mere spectators that the Bath wing man had gone into touch, but the Referee, who was some way behind the game, awarded a try. The goal kick fell short.

Bath attacked, again headed by Pitman, their stand-off half, but their passing was slow and the Air Force backs missed several opportunities by hanging back in defence instead of attacking. One or two Air Force movements broke down by forward passing and knocks-on. Harvey broke away on one occasion and used his feet to considerable advantage. He was well supported by the forwards, but Maxwell knocked-on in a desperate attempt to gather near the Bath line. A careless kick across into the hands of the Bath left wing put the Air Force into a very tight place but they were rescued by Chick with some clever foot-work.

Massey broke through once in good style, handing off a couple of Bath three-quarters, but was overwhelmed after making good ground. Some perfect passing between Russell and Norwood near the Bath twenty-five sent Bryson over for a try. Maxwell kicked a magnificent goal from the line—in spite of the crowd of spectators on that side of the ground who did their best by yelping and booing at the critical moment to put him off his kick. The spectators, who seemed to be the sweepings from the Bath bun-factories, showed the same unsporting spirit all through the game and kept up a running fire of personal abuse of various members of the R.A.F. team throughout. "Barracking" is not usually a feature of Rugby football.

Shortly after this Bath scored on their right wing after a fine run by Pitman and James, whose speed and perfectly timed passes defeated Harvey and Hale-Munro. The kick at goal went wide. An attempt to repeat this was foiled by Harvey in a fine tackle.

The Air Force backs showed better combination in attack in the second half. Russell outmanoeuvred the Bath scrum-half and his passes came out to Norwood like bullets out of a gun. Norwood rose to the occasion manfully. In fact once or twice he had to take them

over his head, but he never failed, and generally gained ground. He started one R.A.F. attack early in the second half, running well and selling a dummy, but Bryson was brought down on the wing and passed too late. A second attack started immediately with reverse passing between Norwood and Russell and Harvey finished it off with a try behind the posts. Maxwell kicked a goal.

Then the Bath wing became very dangerous, led by W. J. Gibbs, the Bath captain. Gibbs, who was easily the fastest man on the field, handed off Massey, dodged Harvey and hurdled Hale-Munro, but met his doom within a few yards of victory at the hands of Russell, who brought him down in the most perfect tackle of the whole game. Even the ranks of the bun-factories could scarce forbear to cheer.

The last quarter of an hour was mainly an Air Force offensive, only checked by three free-kicks against the Air Force for off-side. Chick was the offender in each case, although one is of the opinion that the third time the Referee's off-side complex outran his judgment. However, that, like the first try, is a matter of opinion, and who would be a Referee anyhow?—C. M. MCA.

The R.A.F. team were:—Full-back: Flg. Off. Hale-Munro; Three-quarters: left wing, Flt. Lt. Bryson, Flg. Off. Hodder, right wing, Flg. Off. Harvey, AC. Massey; Half-backs: Flt. Off. Norwood and Sq. Ldr. Russell; Forwards: Flt. Lt. Maxwell, Flt. Lt. Chick, Flg. Off. Beamish, Cpl. Christie, Flg. Off. Franks, Flg. Off. Reynolds, Flg. Off. Heskeith and Wing Cdr. Hicks.

The Services' Rugger Dance.

Tickets for the inter-Services' Rugby Football Dance at the Hyde Park Hotel on March 5 may be obtained from Flt. Lt. T. W. Elmhirst, A.F.C., Air Ministry, Kingsway, W.C.2. The tickets are 22s. 6d. each (which includes supper and wines).

The R.A.F. (India) Dinner.

The date of the above Re-Union Dinner is March 26, the night of the R.A.F. v. Army Rugby Football match, and not March 12, as stated last week.

Tickets, 16s. 6d. each (exclusive of wines), may be obtained from Flt. Lt. J. G. Walser, R.A.F., Farnborough.

R.N.A.S. (Eastbourne) Re-Union.

A Re-Union Dinner for all ranks who served with the R.N.A.S. at Eastbourne will be held on Mar. 4, at the Comedy Restaurant, Haymarket, at 6.30 for 7 o'clock. Tickets 8s. each may be had from Mr. James Ash, 48, St. Peter's Rd., Croydon.

DISARMAMENT AND CIVIL AVIATION.

On Feb. 7 a special Committee, convened by the League of Nations to discuss the economic consequences which would follow a limitation of aerial armaments, taking into account the needs of civil aviation, met in Brussels.

The countries represented were Great Britain, the United States, Germany, France, Italy, Holland, Poland and Sweden.

The British delegates are Group Capt. W. F. McNeece, C.B.E., D.S.O., D.F.C., of the Directorate of Operations and Intelligence of the Department of the Chief of the Air Staff, Air Ministry (Air Representative, League of Nations), and Lieut.-Col. I. A. E. Edwards, C.M.G., Chief Technical Adviser of the Directorate of Civil Aviation.

M. de Brouckere (Belgium) welcomed the delegates on behalf of the Minister of Foreign Affairs.

At the first session held on Feb. 7 the Committee passed a resolution declaring that it was essential in any limitation of aerial armaments to avoid hampering the development of civil aviation.

A statement made by Mr. Guggenheim on the position of civil aviation in the United States will be discussed at a subsequent meeting.

Tungstone Sincerely Thanks anonymous writer in Motor July 13th/26

In the "Motor" issue of June 8th last I read with much Interest a letter over the signature of Mr. McKinnon regarding starting-battery design. I am not an electrical engineer, and therefore do not propose to attempt to discuss the deeper mysteries of battery design; I would like, however, to record my experience of the Tungstone accumulator.

As I believe I was one of the motorists who took delivery of one of these accumulators soon after they were placed on the market, and have since been a constant user, my experience may not be without interest to other fellow motorists.

Must be a Self Starting Record Never failed to start Engine

My car to which this battery is fitted is a six-cylinder, and during the time it has been in use it has not once failed to start the engine on the coldest morning, and my garage, I might mention, has no heating system of any kind. I think this performance, having regard to the fact that I never make a practice of either flooding the carburetter, or in any way priming the engine, is very remarkable.

Hardly any Sign of (Paste) Sediment in any 2 volt Cells

Amongst the claims made by the makers for this accumulator, they state that no sediment space is provided or necessary, and this claim, so far as my own personal experience is concerned, would seem to be borne out, for although the accumulator which is fitted to my car has been in use several months, and often used most roughly, at present there is hardly any sign of sediment. With other accumulators previously fitted to my car it has been found necessary to have these washed out at least every six months to get rid of the excess, and this in spite of the fact that the clearance between the bottom of the plates and the container is at least three times that provided in the Tungstone.

SIX cylinder Engine STARTED 13,000 times within SEVEN MONTHS

Another feature of this accumulator which has been very pleasing is that during the time it has been in use it has made no fewer than 13,000 starts, a performance which, I think, is exceptional. The method of recording accurately the number of starts was made by means of a simple arrangement consisting of a Roneo cyclometer, and was carried out in view of some of the extraordinary claims which the makers put forward.

Mr. McKinnon's remarks that the omission of separators may obtain added kick is true in my experience, but, as humorously put by him, the cells have yet to "kick the bucket."

T.M.88

TUNGSTONE ACCUMULATOR CO., LTD., St. Bride's House, Salisbury Square, London, E.C. 4

THE SUPERCHARGING OF ENGINES.

The paragraph bearing the above heading in THE AEROPLANE of Feb. 2 announcing a lecture by Mr. A. H. R. Fedden before the Institution of Automobile Engineers on Feb. 15 was entirely erroneous, and the outcome of a misapprehension.

The Institution of Automobile Engineers sent to the office of THE AEROPLANE an advance copy of a paper on this subject by Mr. Fedden. This bore no direct reference to the date on which it was to be read nor any other details about the meeting, but it did bear a request that the paper should not be published *in extenso* till after Feb. 15.

It is usual to request that papers be not published till after they have been read and it was assumed that Feb. 15 was the date of reading. The Institution of Automobile Engineers was then asked by telephone for the place of the meeting on Feb. 15 at which this paper was to be read and gave the address as the Royal Society of Arts.

Actually the paper was read on Feb. 1 before a joint meeting of the Royal Aeronautical Society and the Institution of Automobile Engineers. This was duly announced in the programme of the Royal Aeronautical Society published in THE AEROPLANE on Jan. 12, but in the absence of any definite statement that the Institution of Automobile Engineers were to participate in that event it was naturally assumed that Mr. Fedden was reading another paper before the second body. Therefore one assumes that there will be no paper on Feb. 15.

MR. FEDDEN'S PAPER ON SUPERCHARGING.

Mr. Fedden said that the artificial charging of the cylinders of internal combustion engines by no means new. It dated back almost as far as the history of gas-engines, and many supercharged gas-engines had been built both in this country and abroad. The methods employed in these were not however applicable to engines of aircraft or motor vehicles.

Continental patents for the application of supercharging to motor-car engines were applied for as much as twenty-five years ago, and supercharged racing cars were actually built in the first decade of the present century. They were not satisfactory and were not taken very seriously.

The first real impetus to an attack on the problems of supercharging the high speed petrol-engine arose during the War when serious research on its application to aero-engines was undertaken. Such work was undertaken in 1915/16 at Farnborough, by Rateau in France, and at a later date by the General Electric Co. of America. In these three countries the exhaust turbine centrifugal blower received most attention.

Concurrently in Germany and Switzerland gear-driven centrifugal superchargers were tried by Siemens, Schwabe, and Brown Boveri, and experimental aircraft with supercharged engines were built and flown before the Armistice.

Since the War the result of this experimental work had been applied to racing motor-cars with remarkable success and it might reasonably be asked why supercharging had not been applied more widely to both aero-engines and motor-vehicles? The possibilities were great, but the practical problems of applying the superchargers were complex.

To force into the engine the increased weight of mixture which constituted supercharging some compact form of pump was necessary. Three main types of pump were available, the centrifugal fan (driven by an exhaust turbine or gearing), the Roots type blower, and the eccentric vane type of pump. The piston pump was impracticable because of excessive size and weight.

There was room for much further research in the development of satisfactory supercharging pumps, and there were few organisations which possessed the plant and the experience for undertaking such work. The R.A.E. at Farnborough and the Langley Field Laboratories in the United States were the only ones known to possess the necessary facilities.

EXHAUST-DRIVEN TURBINES.

The exhaust-driven turbo-compressor was not suitable for motor-car purposes but had great advantages for aircraft engines. At ground levels the back-pressure was somewhat more than the pressure developed by the blower, and an engine fitted with the system gave reduced output at the ground. As atmospheric pressure dropped with altitude, the pressure difference available across the turbine increased, gave greater speed to the turbine and increased the pressure-rise through the blower. The power available in the pressure-drop was sufficient to give ground-level induction-pipe pressure up to an altitude of 20,000 ft. or more, and the device was almost self-adjusting for change in atmospheric pressure with height.

The exhaust-gas drive to the blower was exceedingly smooth and gave an automatic cushioning effect on sudden acceleration of the engine, and produced a remarkably steady effect, and exceedingly smooth running of the engine.

The design and manufacture of the turbine wheel had proved difficult. To give ground-level pressure in the induction pipe at 20,000 ft., and to keep the compressor to a reasonable size, a speed of 27,000 to 30,000 r.p.m. was necessary. The turbine wheel had to run at that speed with exhaust gas at 650° to 700° C. playing upon it continually. Satisfactory turbine rotors had now been made, machined complete with blades, from a special non-scaling high chromium steel.

The maintenance of completely gas-tight exhaust joints was a difficult matter and had proved more troublesome in practice than almost any other part of the system.

GEAR-DRIVEN COMPRESSORS.

The gear-driven turbo-compressor could be applied to both car engines and aero-engines. Careful design was necessary to secure stiffness combined with light moving parts in order to keep down acceleration loads. Step-up gearing of from 6 to 12 to 1 had been successfully used. Gearing naturally called for very careful design and manufacture, and a spring drive between the crankshaft and the blower was desirable.

Theoretically this type was less attractive for aircraft than the turbo-driven type, as the power required to drive the compressor was nearly constant at all heights, and it was not possible to keep ground-level induction-pipe conditions to so great an altitude without a serious

loss of power at ground level. With moderate gear ratios (meaning maintaining ground-induction conditions to moderate heights) air inter-cooling could be avoided and a very compact installation obtained. For the car the type was expensive to produce and in its present form somewhat noisy.

The Roots blower type of pump had been extensively used on recent European racing cars. It was cheap to produce, should be simple and reliable in operation and did not need accurate balancing. It could be direct-driven from high-speed engines, or through a moderate step-up from low-speed engines. It seemed likely to become heavy and cumbersome in the sizes necessary for aircraft engines, but had definite possibilities for car engines.

ECCENTRIC PUMPS.

There were two main types of the eccentric-vane pump. In one the vanes pass through fixed slots in the rotor and were free to fly out against a rotating ring or drum under centrifugal force. In the other type the vanes passed through oscillating slots in the rotor and were attached to a lay-shaft concentric with the casing. They ran therefore with a fixed tip-clearance.

With the fixed-slot type excessive friction and wear of blades had been encountered, and lubrication of the guide-slots had proved difficult.

Considerable pressure could be obtained with this type of pump operating at engine-speed or with a moderate step-up. Little was known of it as an aircraft supercharger, but it would appear to be heavy and bulky if direct-driven. With a suitable gear-ratio a design of reasonable weight and size seemed feasible. The large moment of the rotor might however lead to trouble with crankshafts.

Considerable numbers of the type had been employed for cars, but troubles with lubrication, oil-leakage and rapid wear had been experienced with earlier types. Improved designs, driven by silent chains seemed attractive for cars.

The object of supercharging was to obtain more power—either at height in the aero-engine or on the ground for acceleration, etc., in the car-engine—and the engine itself had to be designed for supercharged working.

The valve-timing of a supercharged engine approached that of a normal slow speed type—overlap could be reduced. With the exhaust-turbo type no overlap at all was permissible, owing to the high terminal exhaust-pressure. Lateness of closing the inlet valve could be reduced without reducing volumetric efficiency.

The high expansion pressure of the supercharged engine forbade early exhaust-opening as this would mean excessive loads on valve-gear and very hot valves.

With a positively-driven blower there was effectively another fly-wheel on the crankshaft. That, in a radial engine, gave two synchronous speeds for torsional oscillation and both these had to be avoided or kept outside the working range. With multi-crank engines the problem was much more complicated and it became advisable to make the blower act as a torsion damper.

EFFECTS OF SUPERCHARGING.

Supercharging increased both the maximum and the mean effective pressure. Pistons, gudgeon pins, connecting rods, crankshafts, etc., had to be designed accordingly.

Compression of the intake air raised its temperature and despite the cooling effect of the fuel, the temperature of in-going gas rose rapidly as the blower compression increased. Coolers between compression and engine were necessary with a "boost" of 5 to 6 lbs. per sq. in.

If the engine were supercharged to give more power at sea level more heat units were liberated and more cooling was necessary. If supercharging were used to keep up power at high altitudes, the same number of heat units were liberated, but cooling had to be provided in a rarified atmosphere where the boiling-point of water came down appreciably, and with water-cooled engines this meant increased radiator-surface and increased drag on the aircraft. Air-cooled supercharged engines did not suffer from the fall in boiling point and actually were quite satisfactory as regards cooling.

Supercharging reduced the thermal efficiency of the engine, firstly because power was absorbed in the supercharger and secondly because thermal efficiency depended on expansion ratio, and the detonating qualities of available fuel made necessary a less expansion-ratio supercharged than could be used otherwise.

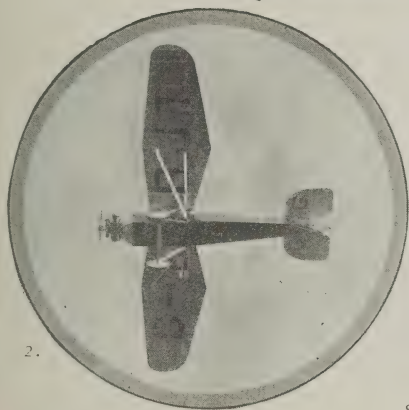
This was not a serious drawback in the aero-engine, nor in the case of the motor-car engine where supercharging was used to keep up volumetric efficiency at high rates of revolution. When used to increase power under conditions of normal efficient filling of the cylinders—as in racing—the effects in temperature-pressure and fuel-consumption presented considerable difficulties.

For aero-engines various devices other than the supercharger had been tried to overcome the drop in power at height. Among these were:—(1) An over-size engine with normal compression to be run throttled low down and to take in an extra charge at altitude, (2) A high compression engine throttled down at ground, (3) A high compression engine run on anti-detonating fuel low down and changing to normal fuel higher up, (4) The variable timing engine. No. 1 meant considerable increase in weight and bulk, Nos. 2, 3, and 4 had all given satisfactory service and an increase in performance high up, but were considered only as useful compromises inferior to a reliable and efficient supercharged unit.

A good deal of the original paper is devoted to the use of superchargers on motor vehicles. Mr. Fedden is of the opinion that in the future the supercharger will be extensively used on motor vehicles as the most satisfactory method of increasing the output of a given cylinder capacity and of producing small engines capable of the maximum acceleration and flexibility.

A PAPER ON AIR SURVEY.

On Thursday, Feb. 10, Capt. F. Tymms, M.C., is to read a paper before the Institution of Aeronautical Engineers on "Flying for Air Survey." Major H. Hemming, A.F.C., is to take the chair and the meeting will be held at the rooms of the Junior Institution of Engineers, at 6.30 p.m.



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2. The Westland Widgeon.

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For eleven years we have been designing and building aeroplanes, and to-day the reputation of Westland Aircraft for safety, speed and comfort is world-wide.

Our designs comprise all types from private single seaters to large twin engined bombing machines.

In these days road travel is anything but pleasant. By owning a light passenger machine you can recapture the joys of travel. We intend to publish shortly particulars of Widgeon III, a light passenger Monoplane which will be within reach of the man of moderate means. The machine folds, and will go comfortably into an ordinary garage. Widgeon II, the parent machine was the fastest machine in the Grosvenor Cup Race this year, with an average speed of 105.5 m.p.h.

We are supplying numbers of machines to the Royal Air Force both at home and abroad. We have our own 4 ft. wind channel for testing models, and our extensive aerodrome is situated by the side of the works for testing the finished machines. Enquiries are solicited for aircraft for all purposes.

WESTLAND AIRCRAFT FOR BUSINESS OR PLEASURE.

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ENGLAND.

PRATT AND WHITNEY AIR-COOLED ENGINES.

To the short note which was published in *THE AEROPLANE* of Aug. 25 concerning the products of the Pratt and Whitney Aircraft Co. it is now possible to add some further details as to the Wasp engine, together with photographs of this and of the still newer Hornet engine. This information is extracted mainly from a paper by Mr. G. J. Mead, read before the Society of Automotive Engineers at Philadelphia on Sept. 3.

When the Pratt and Whitney Aircraft Co. was formed it was decided to specialise in the production of air-cooled radial engines with a special view to meeting the American Navy's requirements for the development of engines of this type, which should meet all normal Service needs.

THE PRATT AND WHITNEY WASP.

These requirements call for an engine of round about 200 h.p., for training machines, etc., one of 400 h.p. for high-speed fighters and reconnaissance machines, and one in the 500 h.p. class available for heavy aircraft of all types. A satisfactory and well-developed 200 h.p. engine was already in existence, and the firm therefore directed its first effort to the 400 h.p. type.

To obtain a low weight per h.p., high speeds of rotation are necessary. To permit of the use of such an engine in fighters, speeds of rotation very considerably in excess of those corresponding to normal operation must be possible during a dive at high speed.

The limiting factor to high speed in the radial type of engine is the big end bearing loads and lubrication conditions. To keep these down to permissible limits, the lightest, strongest and most rigid big-end construction is desirable, combined with light reciprocating parts, etc.

For the Wasp the Pratt and Whitney Co. adopted a solid big end and a two-piece crankshaft—which arrangement, it is interesting to remember, has also been adopted in the latest type of Bristol Jupiter. The details of crankshaft construction in the Wasp are more reminiscent of old-time rotary engine construction than those employed in the Jupiter.

The main crankpin is in one piece with the airscrew shaft, and the maneton—or tail-piece—telescopes into the crankpin, is located therein by splines, and held in place by a long bolt passing right through the pin. This construction is a little less daring than that successfully adopted by Mr. Fedden for the Jupiter VI, and is probably also a little heavier, but is obviously a very sound and conservative arrangement.

To obtain the best cylinder cooling, ample room for valves, light reciprocating parts, and reasonable connecting-rod angularity, combined with small over-all diameter, a cylinder of the "square" (bore equal to stroke) type was adopted. The cylinders are of the steel with screwed-on aluminium alloy heads type developed in this country.

The head is hemispherical, with valves set at a large included angle, and as the photographs show, a very clear flow of air past the head proper is provided. Bronze valve seats are cast into the head, and spark plugs screw directly into

the aluminium head casting. Both valves open to the back of the engine, and provision is made either for an exhaust ring just behind the engine proper, or for independent exhaust pipes leading straight back.

The crankcase is an aluminium alloy forging, split on the centre line, and with the main crankshaft bearings carried in the main case, and not in a bolted-on cover. The two main crankshaft bearings are of the roller type, and a deep groove ball bearing just behind the airscrew hub serves as a combined thrust and journal bearing.

The induction system is of the rotary type, using a centrifugal impeller in a casing at the rear end of the crankcase and tangential induction pipes. Unlike the rotary induction systems employed in the Armstrong-Siddeley engines, the impeller of the Wasp is geared up to five times engine speed, and can be used effectively as an altitude supercharger.

Behind the impeller chamber is a gear chamber containing all the accessory drives. These include two magneto drives, two synchronizer heads for machine-guns, rev. indicator drive, generator drive, and oil and fuel pump drives, with, in addition, an inertia starter.

This multiplicity of drives has been secured by means of three lay shafts all driven from a single spur gear on the crankshaft.

Grouping all the accessories in the rear has resulted in an engine very easy to cowl and provides for unusually symmetrical fuselage lines.

The supercharger unit and the gear unit can be separated from the crankcase proper without any dismantling of the engine proper, and this may be done when the engine is mounted in an aeroplane. Thus the crankcase, cylinders, crankshaft and valve gear can be withdrawn, leaving the accessory gears in place and without upsetting their timing, and a new power unit inserted in its place without disconnecting engine controls or oil and fuel connections.

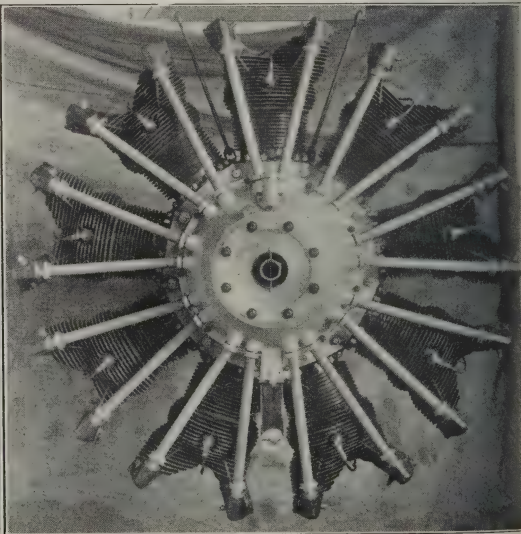
A feature of this engine, which is not to be found in any European radial is the complete enclosure of valve gear and tappet rods, and the provision of automatic lubrication throughout.

The work of designing the Wasp started on Aug. 1, 1925, and a year later 300 hours of test running had been completed, and the engine has been fitted to drive different types of aircraft and flown in them.

SPECIFICATION OF THE WASP.

Number of cylinders	..... 9	Normal output
Length overall	... 43½ inches	425 h.p., 1,900 r.p.m.
Diameter overall	... 50½ inches	B.M.E.P. ... 130 lbs./sq. in.
Bore	..... 5.75 inches	Fuel consumption
Stroke	..... 5.75 inches	.52 lbs./B.H.P. hour
Piston displacement	1,344 cub. inches	Oil consumption
Compression ratio	..... 5.25	.025 lbs./B.H.P. hour
		Weight complete (less starter)
		650 lbs.

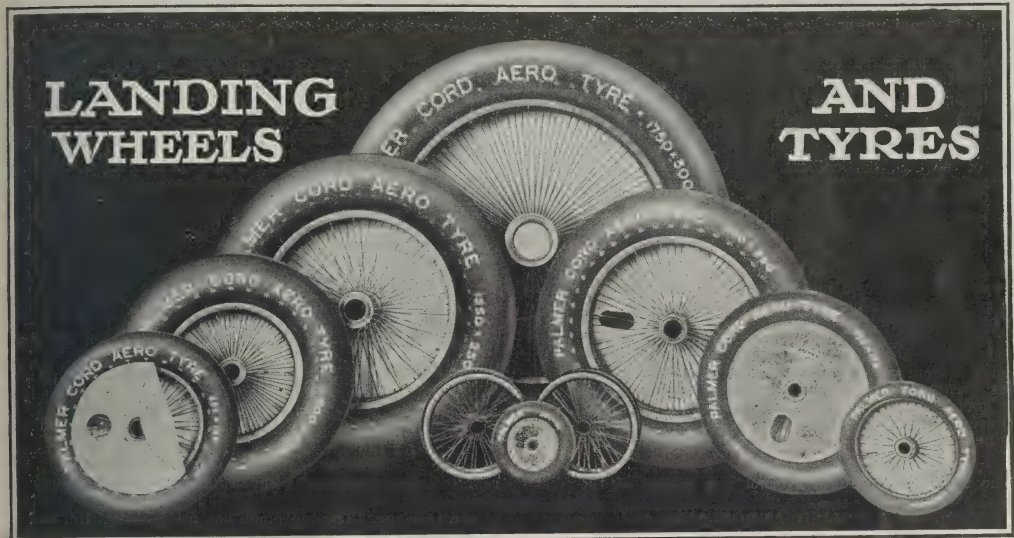
Wasp engines have been fitted to three different types of



THE PRATT AND WHITNEY WASP.—The 400 h.p. engine produced in six months by Messrs. Mead and Rentschler. The view on the left shows how all the accessories are stowed behind the engine.



PALMER



STANDARD SIZES.

Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore				Length	Bore				Length	Bore	
375 x 55	168	m/m 111.12	m/m 25.4	m/m Central	700 x 100	112	m/m 150.	m/m 38.09	m/m Central	1000 x 150	210	m/m 185.	m/m 60.32	m/m Central
300 x 60	16	111.12	25.4	Central	"	176	178.	44.45	Central	1000 x 180	148	220.	80.	Central
450 x 60	30	89.	31.75	Central	"	179	178.	55.	132/46	"	149	185.	55.	Central
"	172	130.	38.09	Central	650 x 125	119	178.	55.	132/46	"	155	220.	66.67	Central
575 x 60	21	160.	28.	Central	"	147	178.	55.	Central	"	166	185.	55.	125/60
"	80	150.	38.09	104/46	"	188	120.	34.92	Central	900 x 230	107	185.	55.	Central
"	186	120.	34.92	Central	750 x 125	77	178.	44.45	132/46	"	108	185.	55.	125/60
"	190	150.	38.09	Central	"	92	185.	55.	135/50	"	128	220.	66.67	Central
650 x 65	78	178.	44.45	132/46	"	95	185.	55.	Central	"	137	250.	80.	Central
"	79	178.	44.45	Central	"	99	178.	38.89	132/46	"	157	185.	80.	Central
"	100	178.	38.09	132/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
"	101	178.	31.75	132/46	"	176	178.	44.45	Central	1100 x 220	134	220.	66.67	Central
600 x 75	21	160.	28.	Central	800 x 150	161*	185.	55.	135/50	"	136	250.	80.	Central
"	180	150.	38.09	104/46	"	162*	185.	55.	Central	975 x 225	192	185.	60.32	Central
"	186	120.	34.92	Central	"	163*	185.	66.67	135/50	"	194	185.	55.	125/60
"	190	150.	38.09	Central	"	169†	185.	55.	135/50	1250 x 250	133	250.	80.	Central
700 x 75	78	178.	44.45	132/46	"	177	185.	55.	135/50	"	154	304.8	101.6	Central
"	79	178.	44.45	Central	"	183	185.	55.	Central	1500 x 300	115	304.8	101.6	Central
"	100	178.	38.09	132/46	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
"	101	178.	31.75	132/46	1000 x 150	167	185.	55.	125/60	1750 x 300	139	400.	152.4	Central
700 x 100	77	178.	44.45	132/46	"	174	250.	80.	Central	"	191	350.	150.3	Central
"	92	185.	55.	135/50	"	182	185.	55.	Central	1750 x 350	193	400.	125.	Central
"	95	185.	55.	Central	"	187	220.	66.67	Central					
"	99	178.	38.89	132/46	"	201	185.	60.32	125/60					

*Wheels Nos. 161, 162, 163 and 211 are of stronger type than the other wheels for 800 x 150 tyres. †Wheel No. 169 is fitted with Ball Bearings. Grease gun equipment is now a standard fitting on all wheels.

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single-seat fighters. These are the Wright Apache, the Boeing Fighter and the Curtiss Hawk.

In the cases of the last two, the Wasp engine replaced a water-cooled engine for which these types were built, and because of the considerable weight-saving of the air-cooled engine, the rate of climb and the ceiling are very definitely superior.

With the Apache it was found that the rate of climb and the ceiling were very much in excess of any standard service machine of its type and that the total weight of the machine was 300 lbs. less than the standard service type of pursuit aircraft, which weight very nearly represents the difference between the weight of the Wasp and its water-cooled competitors of equal power.

Late in 1926, the Bureau of Aeronautics, Navy Department, carried out an extended test of a Wasp engine fitted to a Curtiss Hawk (F.6C.-1) single-seat fighter.

This machine, flown by Lieut. R. A. Ofstie, U.S.N., flew from Washington via Dayton, Belleville, Muskogee and across Texas to San Diego, where it was subjected to inspection and test by the operating personnel of the Fighting Plane Squadrons of the U.S. Battle Fleet. On completion of this work, it was flown to Seattle via Bakersfield and Medford and thence back to Washington via Boise, Salt Lake City, Iowa City and Dayton. The total flying time for the round trip was about 65 hours covering a total distance of approximately 7,000 miles.

The Wasp proved to be remarkably satisfactory, and except for the removal and inspection of the sparking plugs at San Diego, nothing was done to the engine.

The Wasp-engined Hawk was very much liked by the operating personnel. The decrease in weight of the power plant improves the performance by the elimination of the cooling system with its attendant radiator and mass of pipelines, greatly simplifies the maintenance problem and materially increases the all-round performance of the Hawk.

Since this test the Curtiss Hawk fitted with the Wasp engine has gone into production for the U.S. Navy.

THE PRATT AND WHITNEY HORNET.

The Pratt and Whitney Hornet is a replica of the Wasp

A POLISH AEROPLANE.

The Central Workshops of the Polish Army Air Service at Warsaw have produced to the designs of the Engineer, Vladislav Zalewski, Chief of the Bureau of Construction of the Aeronautical Technical Service, a very interesting two-seater reconnaissance biplane, known as the W.Z.X.N.1.

This machine is constructed entirely of Polish materials with Polish labour, the only major alien accessories being the 450 h.p. Lorraine-Dietrich engine and the Lamblin radiators.

The W.Z.X.N.1. was tested by the Polish Aeronautical Technical Section in the Autumn of 1926 and was the subject of a very favourable report.

It is a normal tractor biplane. The fuselage is of monocoque construction and has a good streamline shape. The wings are of the semi-thick "tadpole" section, slightly staggered, and have one set of parallel struts on either side



THE HORNET.—A heavy-duty engine of about 500 h.p.

in a slightly larger size, having some 25 per cent. greater piston displacement, and arranged so that it may be used either with direct drive for high-speed aircraft, or with a reduction gear for use in heavy type aircraft. Design was started early in 1926, and the first engine was ready to run in June. At the present moment the firm are not prepared to make any definite statement as to its output, but, it is reported, that tests so far have fulfilled all expectations.

of the fuselage. The top plane has a slight dihedral and the bottom plane is flat.

The undercarriage axle is streamlined to form a small lifting plane of .9 sq. metres area.

Pilot and observer are situated close together just behind the rear spar of the top plane.

The general appearance of the W.Z.X.N.1. is shown in the attached photograph.

SPECIFICATION.

Span	11.31 m.	Weight empty (with water)	1,246 kgs.
Length	8.21 m.	Weight of fuel ...	266 kgs.
Height	3.07 m.	Useful load	403 kgs.
Chord	1.55 m.	Weight loaded ...	1,915 kgs.
Gap	1.6 m.	Max. speed with full load	(corrected) ... 205 km.p.h.
Wing area	33.18 m ² .	Ceiling	6,325 m.



A POLISH MILITARY AEROPLANE.—The Zalewski W.Z.X.N.1, a two-seat reconnaissance biplane with a 450 h.p. Lorraine-Dietrich engine, built at the Central Workshops of the Polish Army Air Service at Warsaw to the designs of M. V. Zalewski.



THE AIRPLANE THAT DOES THE HARD WORK FOR AMERICA

Practically all of the exploring and pioneering expeditions of the United States Government the past two years have been successfully accomplished with Loening Amphibians.

BYRD—Came back safely from Greenland—after six thousand miles of the most dangerous kind of flying in addition to the hazardous task, not yet equalled, of establishing bases, landing, and taking off from this difficult Arctic country with no other support.

BATTEN—Accomplished his Aerial Survey of the Rainy Lakes and the Canadian border with complete success—a feat the Army could not previously accomplish because it took an amphibian and a *good one* to do it.

McDONALD—Beat the records, for speed with load, of the World's best seaplanes with an Army Loening Amphibian, not only as a seaplane but carrying all its landing gear along in addition.

SCHILDAUER—Returned from Cuba, his hydrographic survey for the Navy successfully completed without a hitch, using the very same planes that Byrd flew in the Arctic.

POPE—With no publicity or announcements, successfully accomplished his work for the Navy in the Gulf of Venezuela under the worst tropical conditions.

WYATT—Went up to Alaska with his fleet of Loening Amphibians—flew about fifty thousand miles without a single forced landing of any kind, and flew back down the Pacific Coast to San Diego, completing one of the most brilliant exploits in the annals of American Aviation, and with more than double the amount of difficult Survey work accomplished than had been thought possible.

MOST DIFFICULT of all aviation problems of National Defence giving serious concern to the authorities in Washington, is the development in America of Naval Aircraft that, when launched from the catapults, will land on the aircraft carrier—or when launched from the carrier will land and take off the water. The Loening Amphibian has the proud distinction of being to date the only aircraft of any type that has successfully and conclusively solved this problem.

THE AIRPLANE THAT DOES THE HARD WORK FOR AMERICA

THE LOENING AMPHIBIAN

A TRANS-ATLANTIC AIR MAIL SERVICE.

It is reported that an agreement has been signed between the Argentine Government and the *Lignes Aériennes Latécoère* for the institution of a weekly air mail service between Europe and Argentina.

The service will be an extension of the Toulouse—Casablanca—Dakar service which has been in operation for several years.

This service will be extended by flying-boat to the Cape Verde Islands. Here the mails will be transferred to a steamer which will take them to the island of Fernando Noronha, off the coast of Brazil, where they will be picked up and taken on by aeroplane to Buenos Aires.

The entire journey will take seven and a-half days, but it is hoped eventually to cut down the time to four days, presumably by the substitution of a flying-boat service for the steamer between the Cape Verde Islands and Fernando Noronha.

The contract is for ten years and the first mails are to be despatched on Sept. 1, 1927.

The Latécoère Company has been planning this service for a considerable time and a mission complete with aircraft has been in South America for the past eighteen months examining the possibilities of that portion of the route which is over South American soil.

From the island of Fernando Noronha to Pernambuco, flying-boats will be used and thence to Buenos Aires, via Bahia, Rio de Janeiro, Santos, and Monte Video, Latécoère, type 17, land machines will be used.

TOULOUSE-MOROCCO FIGURES.

The Toulouse-Morocco service has been in regular operation since Sept. 1919. In July, 1925, the service was extended from Casablanca to Dakar.

Since the inauguration of the company, and up to Jan. 1, 1927, its machines have covered 11,145,490 kms., carried 14,417 passengers and 22,563,478 letters.

It is from the mail-carrying point of view that the line has proved so successful. Although there are scarcely 100,000 Europeans in French Morocco, they have so quickly realised the reliability and speed of the air mail that from 1919 when a total of 9,124 letters were carried, the figures grew to 1,407,352 in 1922, and to 7,502,191 in 1925, and 6,149,489 in 1926.

The 1925 figure represents an average of 20,554 letters per day. Which means one letter every five days to or from every white (or near-white) inhabitant of French territory in Morocco, even allowing that a number of those whom the French, with their wide views on the colour-line, class as coloured folk, also write and receive a few letters. Truly a remarkable figure and one that, besides showing the energy of the French as correspondents, shows the real value of an air service over a long route that is badly served by other methods of transport.

CAPT. F. S. BARNWELL ON AIRSCREW DESIGN.

Capt. F. S. Barnwell's paper, "Some Notes on Airscrew Design"—which was read before the Institution of Aeronautical Engineers on Tuesday, Jan. 25, is one of the most useful practical contributions to the literature of aeronautical engineering which has recently appeared in the English language.

The theory of the airscrew is an extremely complicated subject, and it is certainly possible to spend an almost unlimited amount of time in the study of its intricacies. The work of the practical designer of airscrews requires to be based on sound theory, but if he is to produce satisfactory airscrew designs with reasonable rapidity, he must develop standardised approximate methods which will give the required results in normal cases with the minimum possible waste of time.

Capt. Barnwell's paper lays down a standard process for designing airscrews rapidly for normal conditions. By using blades having a standardised series of sections, and of a standard blade form, it is possible to determine with sufficient accuracy the power absorbed and the efficiency of the whole blade under any given conditions from the characteristics of one particular section of the blade—which Capt. Barnwell calls the "test section."

The characteristics of the test section can rapidly be found from model tests on a wing of the same section. The characteristics so obtained require correction for such effects as blade interference, tip speed, and scale effect. These corrections can be made in various ways, but that adopted by Capt. Barnwell is that of tabulating or plotting curves of correction factors derived from airscrew tests and practical experience in such a manner that for each case the required set of corrections can quickly be ascertained and applied. Using the standard blades defined in the paper, the determination of power absorbed, efficiency and thrust, for any combination of airscrew diameter, pitch and maximum blade

width can be accomplished in a very short time—probably a couple of hours would suffice.

The aerodynamic design of an airscrew is however only part of the problem. Airscrews require Certificates of Airworthiness, and have to be stressed. Stressing an airscrew can be a very complicated matter—but using Capt. Barnwell's standard blade form it can be reduced to a routine process carried out in half an hour or so by the use of tabulated data given in the paper.

This reduction of the process of airscrew design to a semi-automatic routine occupying but a fraction of the time which would be necessary to design an airscrew from first principles represents the result of a vast amount of hard work, and the members of the Institution should feel deeply indebted to Capt. Barnwell for placing the results of many years' experience of airscrew design before them in so eminently usable a form.

A PERSONAL EXPLANATION.

THE AEROPLANE has been asked by Messrs. Morris, Ward-Jones, Kennett and Co. to publish the following letter:—

Sir.—On Nov. 19 last you, in common with other newspapers, published a report of the trial and sentence at the Central Criminal Court of John Malcolm Petrie for converting to his own use a sum of £3,000 entrusted to him for certain purposes by Major Innes. Most of the reports referred to the fact that the Jury added to their verdict of "Guilty" a rider to the effect that in their opinion we, Majors Innes and McMahon, were deserving of censure. Many but not all of the reports added that the Recorder, before whom the case was tried, stated that he abstained from expressing either approval or disapproval of the rider. Petrie's appeal having been dismissed by the Court of Criminal Appeal on Jan. 24 we think that in view of our names having been mentioned in the reports we are entitled to publish an explanation.

The prosecution of Petrie was conducted by the Director of Public Prosecutions, and we were concerned in it only in the capacity of witnesses called by Counsel for the prosecution. As witnesses we were not entitled to be represented by Counsel or to offer any explanations except such as consisted of answers given by us to questions put to us by Counsel for the prosecution and defence. In adding the rider referred to therefore, the Jury censured us without hearing our case.

The Jury stated no reason for their rider, but we presume that it was based upon certain comments of Counsel for the Defence as to our holding Directorships of limited companies in which persons connected with the aircraft industry were also Directors. Such comments had no direct relation to the issue being tried and were made with a view to prejudicing the Jury. We are of opinion that the Jury did not realise that we were not established Civil Servants, but were temporarily employed, subject to short notice, and that we had the permission of the Ministry to be Directors of the Companies referred to.

In view of the Jury's rider we immediately suspended our attendance at the Ministry's offices and subsequently submitted our resignations, which were accepted by letter from the Secretary of the Air Ministry of which the following is an extract:—

"The Council, while accepting your resignation, do not fail to recognise the good service you have given since your transfer to the Air Ministry, and, more especially, the assistance you have rendered while the Directorate of Contracts has been under reorganisation.

"In view of the publicity which was recently given to certain imputations on your conduct, I am to add that the Council, having examined the matters at issue, are of opinion that they afford no ground for impugning your probity or honour; and in order to avoid misunderstanding they are so informing the principal officials of the department."

In view of the publicity given to the Jury's rider we beg to request that you will give similar publicity to this statement.

(Signed)

A. INNES.

F. R. MCMAHON.

[There was no issue of THE AEROPLANE dated Nov. 19, 1926. No account of this case appeared in the issues of THE AEROPLANE dated Nov. 17 or 24, nor on any other date, so far as one can discover. Nevertheless one is glad to publish this explanation.—C. G. G.]

SUPERCARGERS IN THE U.S.A.

The 50th Observation Squadron, U.S. Army Air Corps, having during the past summer and autumn been carrying out experiments with two D.H.4M.26's, which are ordinary D.H.4Bs, with metal fuselages, fitted with Liberty engines equipped with type "F" turbo-superchargers. At first, trouble was experienced with cracked supercharger air manifolds. This was rectified, and ten flights have been made, all without the use of oxygen equipment.

Cadet Wheaton reached a height of 25,000 feet, and it is estimated that a maximum altitude of 35,000 feet can be reached with this equipment when oxygen apparatus is installed.

On Dec. 7 Lieut. C. O. Perry, carrying Capt. T. C. Buckner, flight surgeon at Wilbur Wright Field, reached a height of 28,000 ft. without the use of oxygen.

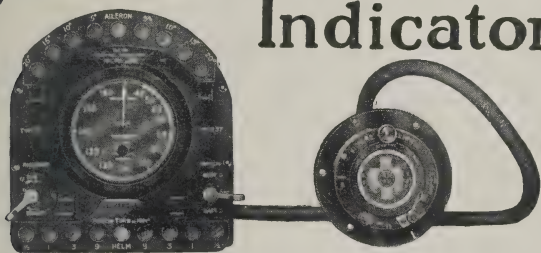
Capt. Buckner's purpose in making the flight was to determine the effect of thin atmosphere on the human body. Up to 25,000 feet he took his own pulse, but after passing that altitude he was unable to count the pulsations correctly and experienced difficulty in changing his position in the cockpit.

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THE FLYING CLUBS. The London Aeroplane Club.

Report for week ending Feb. 6.

Total flying time 51 hrs. 25 mins.

The following members had flying instruction:—C. H. Swan, E. R. Wilson, A. F. Wallace, N. H. M. Watkins, G. Saxon Mills, F. W. Martino, E. J. B. King, H. D. Guggenheim, Mrs. Christie, L. W. Gibbens, J. G. Crammond, C. R. Campkin, D. H. P. Esler, J. J. Hofer, H. J. Greenland, C. R. S. Susman, Miss O'Brien, E. A. Lingard, T. E. Rose Richards, F. C. Elford, G. N. Howe, E. D. Moss, R. Malcolm, H. Solomon, Dr. Cook, Mrs. Cook, L. C. Davey.

The following flew solo:—N. Jones, L. J. C. Mitchell, E. E. Stammers, O. J. Tapper, C. H. Craig, S. O. Bradshaw, K. V. Wright, C. E. Murrell, A. R. Ogston, H. Solomon, A. F. Wallace, Miss O'Brien, D. H. P. Esler, R. Malcolm, E. S. Brough, B. Roxburgh Smith, Lady Bailey, H. Spooner, W. Hay.

The following members were given passenger flights:—J. H. Saffery, R. Drysdale Smith, A. Mines, Miss Irene Frank, E. K. Rayson, L. W. Gibbens, E. D. Evans, J. J. Hofer.

During the week the instruction was done by Mr. F. G. M. Sparks, Flg. Off. R. W. Reeve, Mr. A. S. White, and Mr. C. D. Barnard.

The Hon. Lady Bailey (formerly the Hon. Mary Westenra, daughter of the Lord Rossmore) and Mr. N. Jones have been elected to the Committee of the Club.

The Directors of the Bristol Aeroplane Company Ltd., Bristol, have offered to place a Bristol Brownie with Bristol Cherub Mark III engine at the disposal of the Club free of charge. The Committee at its Meeting last week unanimously decided to accept this offer, and a letter conveying the warmest thanks of the Club was forwarded to the Directors of the Bristol Aeroplane Co.

The Club has nearly 50 members holding R.Ae.C. Certificates and with only two machines available for soloists, the flying time per member has had to be restricted. The generous and practical help given to the Club by the Bristol Aeroplane Company will be greatly appreciated.

The month of January was bad from a flying point of view. The total flying time was 83 hrs. 10 mins. as follows:—Dual training, 110 flights, 49 hrs. 45 mins. Solo training, 6 flights, 1 hr. 15 mins. Solo flying, 53 flights, 17 hrs. 40 mins. Test flying, 45 flights, 7 hrs. 30 mins. Passenger flying, 20 flights, 7 hrs.

Totals, 234 flights, 83 hrs. 10 mins.

During the month 82 individual members were in the air.

The Newcastle-upon-Tyne Aero Club.

Report for week ending Feb. 6.

Total flying time 30 hrs. 35 mins.—LX 16 hrs. 40 mins., LY 12 hrs. 5 mins., Avro 1 hr. 30 mins.

Dual with Mr. Parkinson 9 hrs. 15 mins. Solo (training) 9 hrs. 4 "A" Pilots 9 hrs. 20 mins. Passenger flights 1 hr. 10 mins.

The following members flew under instruction:—Sir Joseph Reed, Messrs. Welch, Turnbull, Wardill, Bainbridge, Wilson, Rasmussen, Twine.

Solo practice: Messrs. Mathews, Stewart, Turnbull, Bainbridge, Bell, and Miss Leathart.

"A" Pilots: Mr. F. H. Phillips with Mr. and Mrs. Sykes, Mr. H. Ellis with Mr. Heppell and Mr. Wood. Dr. Dixon. Mr. J. D. Irving with Messrs. J. Bell, Percy, Thirlwell, Miles A. Bell. Mr. C. Thompson with Mrs. Heslop. Mr. R. N. Thompson with Miss Edwards and Mr. Turnbull.

On the Avro: Mr. P. F. Heppell. Mr. Baxter with Mr. Davey, Mr. Flinn, Mr. Robson and Mr. Crabb, Mrs. and Master Cooper. Mr. J. D. Parkinson with Mr. MacDonald, Mr. Phinney and Mr. Miesegages. A new record for one day's flying was created on Sunday, the 6th, when 13 hrs. 30 mins.' flying was done, the best previous day being during last summer—11 hrs. 15 mins.

Mr. Turnbull and Mr. Bainbridge were both "launched" on Sunday and both did some solo flying afterwards. Mr. A. Bell passed the practical tests for his licence on Wednesday.

The Lancashire Aero Club.

Report for week ending Feb. 5.

Total flying time 17 hrs. 45 mins., made up as follows:—

Dual with Mr. Brown: Messrs. Nelson 1 hr. 30 mins., Gatterall 1 hr. 20 mins., Costa 1 hr., Miss Emery 50 mins., Miss Brown 40 mins., Messrs. Benson 35 mins., Dickinson 35 mins., Abdalla 30 mins., Caldecott, Musgrave and Forshaw 25 mins. each, Slater 20 mins., Meads and Wade 15 mins. each, Wood 10 mins.

Solo: Messrs. Twemlow 1 hr. 45 mins., Costa 45 mins., Gatterall 35 mins., Lacayo 25 mins., Leeming 20 mins., Dobson 10 mins.

Joy-rides: With Mr. Brown—Mr. Caldecott 1 hr. 40 mins., Mr. Evans

15 mins. With Mr. Costa—Mr. Vianio 15 mins. With Mr. Cantrill—Mr. P. Gatterall 10 mins.

Test flights: 2 hrs. 10 mins.

Writing from memory and judging from the state of one's car it rained incessantly during the week. One gathers from the flying hours, however, that there must have been clear intervals or else that some of that characteristic Yorkshire grit must have drifted across the border.

This week's soloist is Mr. Gatterall, a popular member who did sterling work as transport officer in connection with the Club's flying displays. One is very glad to see him join the ranks of the soloists. Returning from Chester last week on the Alpha-Gosport, Mr. Leeming ran out of petrol. With characteristic Lancashire foresight he did so within gliding distance of a roadside petrol station, so that all he had to do was to land in an adjoining field, wheel the machine into the road, fill up direct from the pump, and continue his journey. Mr. Leeming has been putting in most of his time on this machine lately which, in that it does not help to increase our flying hours, is unfortunately from the Club's point of view. No one, however, will find it in his heart to blame him for this, as the Avro-Alpha-Gosport gives one the impression of being rather a wizard-kite in her own class and probably most of us, given the opportunity, would do the same thing.

The Midland Aero Club.

Report for week ending Feb. 5.

Total flying time 9 hrs. 3 mins.

The following members were given dual instruction by Mr. McDonough: Messrs. F. Coxhill, C. Fellowes, and S. H. Smith. Secondary dual: A. B. Gibbons.

The following made solo flights: Messrs. A. M. Glover, R. L. Jackson, and E. J. Brighton.

Passengers with Mr. Brighton: Messrs. L. V. Mann and V. M. Parsons. Passengers with Mr. A. M. Glover: Miss Ratcliffe.

Members are reminded that the Annual General Meeting of the Club is to be held on Thursday, Feb. 17, at the Queen's Hotel, Birmingham, at 19.45 hrs.

The Yorkshire Aeroplane Club.

Report for week ending Feb. 4.

Total time for week 4 hrs. 30 mins., made up as follows:—Solo, 1 hr. 20 mins. Joy-rides, 1 hr. 40 mins. Dual, 1 hr. 5 mins. and Tests, 10 mins.

Messrs. Batcock, Mann and Swift flew dual, and Lax and Mann went solo. There were 11 flights in all.

On Friday afternoon Mr. Fielden, with the Rev. Mr. Shuffrey again as his passenger, set off for Scarborough, where they landed on Oliver's Mount after about 45 mins. A few minutes were spent there before they started for Sherburn, which was reached at 5.20 p.m.

Earlier in the same afternoon the Air Ministry sent their representative, Lt.-Col. Outram, down to inspect the Club, and he appeared to be satisfied that everything was O.K.—R. O. L.

The Hampshire Aeroplane Club.

Owing to postal delays no report has been received from the Hampshire Club. But one is pleased to state that the Hampshire Air Percent will be held on May 15—weather, other than wind, permitting.

The Committee are organising a very fine programme, which they hope will tempt the other Light Aeroplane Clubs to come and compete in friendly rivalry.

They hope also that the Royal Air Force will help them in the task of making the British Public air-minded.

Accommodation will be arranged for a big crowd. Optimists expect that, given a fine day, some 30,000 spectators will assist.

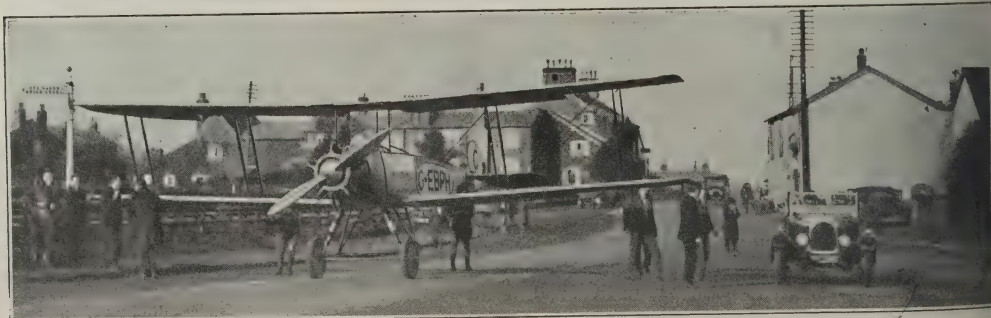
A Light Aeroplane Club in Singapore.

According to *The Straits Times*, the formation of a Light Aeroplane Club in Singapore has been proposed and it is hoped that the Malayan Government will give some financial support.

The Ex-Services' Flying Association, which is responsible for the proposal, is at present in negotiation with aircraft manufacturers in this country with regard to equipment and light seaplanes will be used if possible.

Mr. H. S. Chapman, of the Ex-Services' Flying Association, has outlined the proposals in a talk over the wireless. He concluded with the following statement:—

"Singapore will become a great air base—not only for the R.A.F., but for the commercial air route to Australia, a portion of which, namely, England to India, is already an established fact, and it is surely up to the residents of what will undoubtedly be one of the biggest air ports of the World to show that they are fully awake to the possible aerial development of their already important mercantile city."



THE PARISH PUMP (New Style).—Mr. John Leeming, Chairman of the Lancashire Aero Club, flying from Chester to Woodford on the Gosport-Alpha Avro, was brought down by absence of petrol at Bucklow, Cheshire. Landing near the road, he had the machine pushed to the local petrol-pump, where he re-fuelled and flew home.

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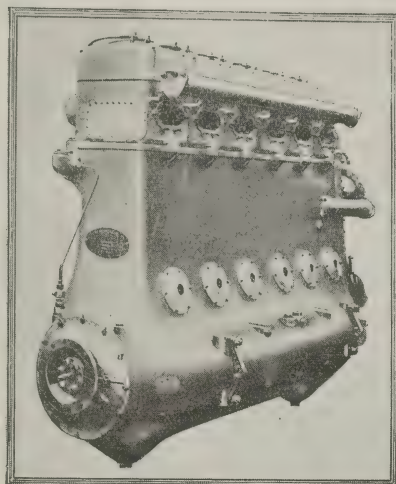
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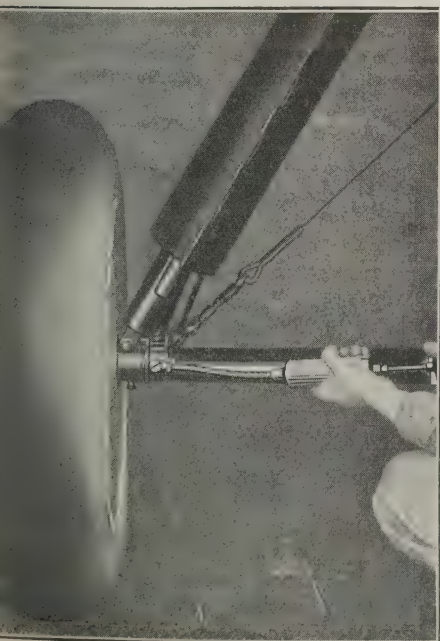
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REAL AIR PILOTS.

There seems to be a good deal of dissatisfaction among aerial chauffeurs of various sorts about the Air Ministry's new regulation that pilots of passenger aircraft must hold Navigators' Certificates.

One would point out that just as our much abused Airworthiness Certificates give British aircraft a standing far above those of all foreign nations, so the holding of a British Air Navigators' Certificate will give British pilots a status above foreign pilots.

The whole thing is only history repeating itself again. The Englishman all over the World holds his superior position not because he *pretends* to be superior but simply because he is superior to foreigners. That is precisely why we are hated by every other nation in the world and at the same time respected and trusted.

The prime reason why British ships can always command higher freight and passenger rates than those of foreign nations is because the "Air at Lloyd's" Certificate stands for so much in the eyes of foreigners. And a further reason why British shipping commands higher rates is because our qualifications for Masters' and Mates' Certificates are so much higher than those of foreign countries.

The same thing has got to happen in Air Navigation. Consequently those aviators who wish to command high pay in the future as skippers of big passenger-carrying aircraft, and are not content to remain merely aerial chauffeurs driving small machines on short runs, commanded and directed from the ground by wireless, have got to show their quality by passing out as navigators.

For these reasons the regulations for the issue of licences to civil air navigators issued by the Air Ministry as Notice to Airmen No. 82 of the year 1926 are of interest. These read as follows:—

AIR MINISTRY NOTICE TO AIRMEN (No. 82 of the year 1926).
CIVIL AIR NAVIGATORS: REGULATIONS FOR THE ISSUE OF LICENCES (713368/26).

It is hereby notified:—

In consequence of recent amendments to Annex E of the International Air Convention, new regulations governing the circumstances in which a navigator must be carried on aircraft and minor changes in the syllabuses of the examination for the first and second class licences will be brought into force as from Jan. 1, 1928. The requirements will be to the following effect:—

I. Requirements concerning the Carriage of Navigators.

1. There shall be two classes of licences for navigators, viz., second class and first class.

2. A navigator who holds a second-class licence shall be on board:

- (a) every flying machine carrying passengers or goods for hire or reward, and having to make a continuous flight of more than 100 miles over inhabited regions, or of more than 100 miles but not more than 310 miles entirely over the high seas or uninhabited regions, or of more than 15 miles but not more than 310 miles by night; and

- (b) every airship of less than 700,000 cubic feet capacity, for every journey or flight.

3. A navigator who holds a first-class licence shall be on board:

- (a) every flying machine carrying passengers or goods for hire or reward and having to make a continuous flight of more than 310 miles either entirely over the high seas or uninhabited regions, or by night; and

- (b) every airship of 700,000 cubic feet capacity or more, for every journey or flight.

4. A flying machine pilot who holds the necessary navigator's certificate may, even if he is alone on board, fulfil the duties of navigator:

- in the case of day flights over inhabited regions, or in the case of day flights of not more than 310 miles over the high seas or uninhabited regions, or

- in the case of night flights over routes suitably marked and recognised as such by the competent authorities.

A flying machine pilot shall not perform the functions of navigator, either on a continuous flight of more than 310 miles over the high seas or uninhabited regions, or on a flight by night except in the case provided for in the preceding sub-paragraph, unless a second pilot is on board, who can in case of need take charge of the flying machine.

When, in addition to the pilot, an aircraft is required to have on board another member of the crew, the latter, if he holds the necessary navigator's certificate, may fulfil the duties of navigator, in the cases provided for in paragraphs 2 and 3 above.

Note.—For the purpose of the foregoing paragraphs:—

An "uninhabited region" is a region where, in consequence of the sparsity of the population and of the absence of natural landmarks or of the insufficiency of the maps, the difficulties of navigation are similar to those met with over the high seas.

A "night flight" is a flight which normally will continue for more than an hour after sunset or a flight commencing more than an hour before sunrise.

A "flight over the high seas" is one in the course of which an aircraft, in following a straight line, may find itself at a distance of more than 30 miles from the nearest shore.

II. Requirements for Navigators' Licences.

A. Second-class Licence.

1. *Air Experience.*—The candidate must produce proof that he has had at least two years' air experience as an operative member of the crew of an aircraft, during which at least 300 hours must have been spent in the air.

2. Subjects of Examination.—

- (i) Form of the Earth; its divisions and their notation.

- (ii) Maps and charts: how to read and use them; practical properties of different projections used in aviation.

- (iii) Earth's magnetism, compasses, their construction, use and adjustment.

- (iv) Flight of dead reckoning, with the use of instruments for the measurement and calculation of the elements of the triangle of velocities.

- (v) Navigation by radiogoniometric bearings; methods of fixing the position of an aircraft, with the application of the necessary corrections.

- (vi) International air legislation; regulations for preventing collisions at sea, publications for the assistance of navigation.

- (vii) Meteorology; meteorological observations, arrangements for the issue of meteorological reports for aviation; principles of forecasting, construction and interpretation of synoptic charts, climatology.

- (viii) Visual Signalling.

- (a) Use of signalling apparatus:—

- (1) Semaphore—Ground. Ability to send and receive accurately messages made in plain language at the rate of 10 words per minute.

- (2) Flashing—Ground and Air. Ability to send and receive accurately messages made either in coded groups or in plain language and numerals at the rate of 8 words per minute on the ground and 6 words per minute in the air.

(As regards the rates of words referred to in (1) and (2) above, each word or group equivalent to a word will consist of at least five signals (letters or numerals).)

- (b) Semaphore and Flashing Procedure. Detailed knowledge of the procedure for opening up communication and conducting messages by both of the above methods.

- (c) International Code—Flags. Names and colours of the flags. Methods of reading the flags when hoisted.

B. First-class Licence.

1. *Air Experience.*—The candidate must produce proof that he has had at least four years' air experience as an operative member of the crew of an aircraft during which at least 600 hours must have been spent in the air, not less than 100 hours of this being experience of navigation in the air and not less than 15 hours being air experience in night-flying.

2. Subjects of Examination.

- (i) Form of the Earth; mathematical calculation of the various elements, i.e., "the sailings" to obtain course and distance.

- (ii) Maps and charts; principles of construction of the common forms of projection used in aviation.

- (iii) Tides; elementary theory and prediction by the aid of tables.
- (iv) Astronomical navigation, various methods of fixing the position of an aircraft, with the use and care of tables, diagrams and instruments for the solution of this problem, knowledge of the mathematics involved.

- (v) Meteorology, more advanced knowledge of the subjects detailed in the requirements for the second-class licence.

- (vi) General knowledge of wireless telegraphy and of the handling of internal combustion engines used in aviation.

III. Requirements for the issue of Licences.

Applicants for licences will be required to satisfy the examining board of the Air Ministry that they fulfil the conditions as to air experience, and will be required to pass an examination which will take the form of written papers, oral examination and practical tests. Candidates before taking the examination for a first-class licence must pass the examination for a second-class licence.

Further details concerning the syllabuses of these examinations, together with notes on books for study, can be obtained on application to the Secretary (C.A.2.), Air Ministry, London, W.C.2.

IV. General.

Examinations in connection with the issue of navigators' licences are held about once every three months at the Air Ministry. Announcements concerning the dates of these examinations are notified periodically in Notices to Airmen.

The papers on visual signalling for the second-class licence and general knowledge of wireless telegraphy and of the handling of internal combustion engines used in aviation for the first-class licence, are not included in the examination at present, but will be introduced on Jan. 1, 1928, when the new regulations come into force.

By Command of the Air Council,
W. F. NICHOLSON.

Dec. 6, 1926.

A GLOSTER AIRCRAFT DINNER.

The Annual Dinner of the Engineering Department of the Gloster Aircraft Co. Ltd. was held in Cheltenham Town Hall on Jan. 29. The Departmental Manager, Mr. Gordon Charley, presided over a large gathering and was supported by a representative body of all sections of the Works.

The toast to the King was followed by one to "The Gloster Aircraft Company," proposed by Mr. Charley. Mr. David Longden, Managing Director of the Company, in replying, stated the forward policy of the Firm. The speech was full of optimism and reiterated the Firm's ideal of giving the highest quality production.

Mr. Longden assured the gathering that a Gloster machine would compete for the Schneider Trophy this year, and, if it did not win, he felt sure it would not be for the lack of enthusiasm and concerted effort of all Gloster employees. He spoke of the four experimental machines the Firm had made during the past year, at their own cost and risk, and to their production of a new deck-landing machine which had been very successful, also a bombing machine and a two-seater reconnaissance machine.

This last year has seen their further development of metal aircraft, even to the production of metal aircrews. Excellent results were now assured with the Gloster Hele-Shaw variable-pitch aircrew.

Mr. Longden concluded with a reference to the tireless qualities and unswerving efforts of the Chief Engineer and Designer (Mr. H. P. Folland) and toasted his health in cordial terms. The toast of the Engineering Department was afterwards proposed by Mr. Folland and responded to by Mr. Charley.

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The London Terminal Aerodrome.

[Owing to the number of hazards possible between the stamping of a letter and its subsequent delivery, the usual table of Cross-Channel statistics will not be available until next week.—G. D.]

Croydon Notes.

Thanks to the weather there is at long last something unusual to record at Croydon. This is very unusual and so was the event. Early on Wednesday morning it snowed and it snowed and it snowed. And the snow lay very heavily on the battered and torn temporary sheds which have so long been a disgrace unto our London Air Port. For the Air Ministry had the audacity to charge ten shillings per night for the housing of an aeroplane in these sheds whose very floors were likened unto the Slough of Despond.

And, as the Air Ministry refused to do justice and hardened its heart and sinned yet more by erecting still more of these ridiculous structures, the elements said "Verily, they are indeed Foul Fellows at the Air Ministry."

And the winds blew and the snow fell and lay heavily on these sheds until they could no longer bear the burden and they burst asunder in the midst. And great was the fall thereof.

Inside was a Handley Page W.10 which was grievously hurt and a D.H.50 which escaped without one hair of its head being touched. Then down went two more hangars but they were empty. Then the avenging angel paused over a hangar in which was the aeroplane most cherished of the Foul Fellows. It was their own D.H.54, for which they did not pay ten pieces of silver per night.

And the snows lay most heavily upon this hangar and it fell upon the aeroplane of the Foul Fellows and it was destroyed. And they gathered up twelve baskets full.

And the suburbs did shake at the sound of the cry of the pilots. (Vide Ezekiel 27-28.)

They did utter curses and said, "Why was the W.10 grievously hurt. Would that it were the Hamilton. For she is like unto a pig that is gross and doth wallow. Or even perhaps one of the W.8s. For these good craft have weathered the storm nigh on six years though the prophets did say they would not last many moons. But hearken unto the words of wisdom of the great Pooh who said "You never can tell with (W.8) bees."

Wherefore on the morrow there was a great outcry against the Air Ministry and their Foul Fellows and the people cried give us homes for our giant Air Liners. Fling open the doors of the great palaces across the plain and give us shelter. And it was so for they saw that it was good.

And they flung open the doors and a great space was revealed and I am very sorry but I really can't go on writing like this any more as no one probably has the least idea anyhow of what I am talking about, so I will try and write comparative sense.

We have got to the point, as perhaps the reader has discovered, when one of the new hangars on the Purley Way side of the aerodrome is ready for occupation.

There are two enormous sheds each of which is divided into halves by a partition. One half is completely finished. The enormous dimensions completely dwarf the machines. Stowed away in one corner was an Argosy and behind here was a W.8b and the damaged W.10, the three machines occupying only about one-tenth of the floor space available. It would be unsafe to keep a Moth in these sheds as it might be trampled underfoot.

The second half is not yet finished but in it is what was once the D.H.54. The fuselage is stove in on the top and the contour of the plane resembles the Giant Racer of Wembley days.

In front of the sheds is a vast area of concrete, about the size of Trafalgar Square, which is to be the arrival and departure platforms. For easy and quick movement it is suggested that all officials shall be fitted with roller skates (and perhaps floats in winter).

When completed the new aerodrome buildings will be very fine and worthy of a Royal opening ceremony.

A.D.C. Aircraft Ltd. are preparing a Martinsyde F.4 as a two-seater with a Puma for Mr. Hope's taxi service. This will be used for special services in which speed is the main consideration.

On the sporting side A.D.C. teams have been doing extremely well. The cricket club were, in 1925, champions of the premier division of the Croydon and district cricket and were awarded a shield and set of medals. They were also runners-up in the knock-out cup competition and were runners-up for the Sportsmanship Cup.

In 1926 they were awarded the Sportsmanship Cup and were again runners-up in the knock-out cup competition.

The Football Club have been equally successful and last season they were awarded the Sportsmanship Certificate for the Caterham and District League. The previous season they had been Champions of Division II and the Croydon and District League without losing a single match. All of which makes a very good record and the firm deserve congratulation.—C. D.

MR. COURTNEY'S ACCIDENT.

It is with great regret that one has to record a serious accident to Mr. Frank Courtney, the famous test pilot.

On Monday, Feb. 7, Mr. Courtney was flying one of the two Auto-Giros which have been built for the Air Ministry at Hamble when a wing broke at a height estimated at 100 feet. Apparently the machine fluttered down instead of falling direct, and Mr. Courtney escaped with a severe shaking and a broken rib or two.

He was taken to the Hamble Hospital, where, at the time of writing (Tuesday evening) he was progressing as well could be expected, and no complications were feared.

This accident shows the risks to which even the most careful and experienced test-pilots are exposed. Although they may be flying machines built by the most reliable makers, embodying the best of such knowledge as is possessed by aeronautical scientists, there is always the danger in a new type of some unknown force coming into being. A machine so entirely new design, which might almost be called a freak, such as the Auto-Giro, is being tested, risk is necessarily greater.

All will wish Mr. Courtney a quick and complete recovery, apart from his personal popularity, his experience is so valuable for his services as a test-pilot to be spared long.—C. G. G.

THE KHARTUM-KISUMU AIR SERVICE.

On Feb. 7 Capt. T. A. Gladstone arrived at Khartum from Cairo in a Fairey III D. seaplane which has been lent to him by the Air Ministry to take the place of the D.H.50 "Pelican" while the latter is being repaired.

It was expected that the inaugural flight on the Khartum-Kisumu air service, to be operated by North Sea Aerial General Transport Co., would be made on Feb. 8.

SATISFACTIONS.

HAIRGATE AERODROME AND LAND DEVELOPMENT CO. LTD.—Satisfactory to the extent of £1,300 on Jan. 1, 1927, of debentures dated Mar. 2, 1926, securing £3,800.

PERSONAL NOTICES.

DEATHS.

EVANS.—On Feb. 4, at Rottingdean, Sussex, as the result of a flying accident, Sidney Arthur Vernon Evans, Plt. Off., No. 56 (Fighter) Sqdn., R.A.F.

Mr. Evans entered the R.A.F. with a short service commission Jan. 17, 1925, and underwent a course of flying instruction at No. 1 F.T.S., Digby. He was posted to No. 56 (Fighter) Sqdn. in December 1925.

LEWIS.—On Feb. 2, at Upavon, as the result of a flying accident, Comer Lewis, Plt. Off., R.A.F.

Mr. Lewis was the second son of Sir Herbert and Lady Ley of Priory House, Cardiff, and was educated at Cheltenham. He was out of the R.A.F. Cadet College, Cranwell, on Dec. 11, 1926, and posted on the same date to No. 3 (Fighter) Sqdn., Upavon.

LONGINOTTO.—On Dec. 31, at Singapore, on board the P. and S. *Khiva*, of pneumonia contracted during the homeward voyage from Japan, Plt. Lt. Ernest Vincent Longinotto, A.F.C., R.A.F., second son of Mr. and Mrs. A. D. Longinotto, Croydon. The interment took place, with full military honours, at Bidadari Cemetery, Singapore.

Plt. Lt. Longinotto served with distinction in the R.A.F. during the War, 1914-18, and was awarded the Air Force Cross in the New Year Honours of 1919. After the Armistice he was appointed to staff of the Deputy Director of Personnel at the Air Ministry. In 1923, he went on a course at the School of Oriental Studies and in 1924, he proceeded to Japan for a special course of language study.

MILLS.—On Feb. 1, while flying off Benhaiga, Malta, Lt. J. Yarnon Mills, R.N., Plg. Off., R.A.F., second son of the late Lord Mills and of Mrs. Mills, of Steventon Manor, Basingstoke, Hampshire, aged 25.

Lt. Mills was detached from the Navy for duty with the R.A.F. in June, 1924. After a course of flying instruction he was posted No. 402 (Fleet Fighter) Flight in H.M.S. Eagle.

MARRIAGES.

ROBINSON-BUSVINE.—On Feb. 4, Charles Keith Robinson (Capt., R.F.C.), son of Charles Robinson, of Friars' Gate, Hounslow to Lucy Busvine, younger daughter of Ernest Busvine, of 34, All Road, Regent's Park, London.

FORTHCOMING MARRIAGES.

ANSON-ALLEN.—The engagement is announced between Plg. Henry A. Anson, R.A.F., second son of the Hon. Francis and Mrs. Anson, of 37, Prince's Gardens, S.W., and Hilda Suzanne, daughter of Mr. and Mrs. S. C. Allen, of 39, Circus Road, St. John Wood, N.W.

BAKER-BONHAM-CARTER.—The engagement is announced Plt. Lt. John Wakeling Baker, M.C., D.F.C., R.A.F., elder son of Rev. S. V. Baker, Rector of St. Peter's, Holborn, and Mrs. Baker, 56, Highbury Hill, N.5, and Katherine Hilary Margaret, only daughter of Lieut-Col. and Mrs. H. Bonham-Carter, of Westerham, Kent.

RANKIN-WOODS.—An engagement is announced between Plt. Archibald James Rankin, A.F.C., R.A.F., son of the late Mr. A. Rankin and Mrs. Rankin, of Montreal, Canada, and Dorothea Elizabeth daughter of Lieut-Col. and Mrs. C. R. Woods, of Alverstoke, Hants.

BIRTHS.

BAGGS.—On Feb. 2, to the wife of C. Bennett Baggs, "Laurel Bank" Holders Hill, Hendon, N.W.4—a son.

CLAYTON.—On Jan. 1, at Palestine General Hospital, to Hilda, wife of Plt. Lt. H. W. Clayton, R.A.F.—a daughter.

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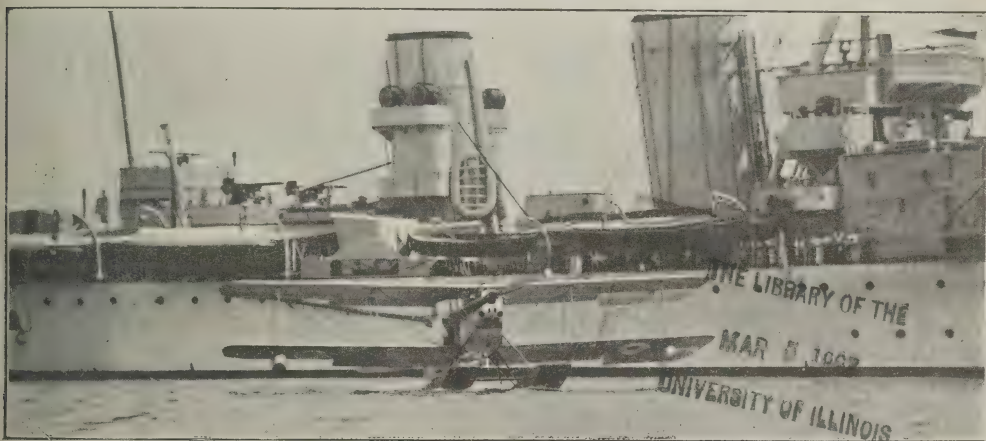
Edited by E. G. G. G.

Vol. XXXII. No. 7.

SIXPENCE WEEKLY.

[Registered at the G.P.O.
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1927.

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VOL. XXXII.

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ON COMFORT IN AIR TRAVEL.

Of the eating of House Dinners there is no end. What with the Royal Aeronautical Society and the Royal Aero Club and the Institution of Aeronautical Engineers, and sundry odd special functions thrown in, there seem to be prospects of having to report a dinner and all its speeches once a week henceforth and for ever.

The question therefore arises as to whether these functions should be reported or not.

Much the same subjects are discussed over and over again, much the same people get up and talk and express much the same opinions and yet, despite the mutual cancellation of the proverbs "In a multitude of councillors there is wisdom" and "Too many cooks spoil the broth" a certain amount of general enlightenment can be derived from these discussions. Moreover, provided that the reports be reasonably accurate, they do give the readers of this paper a certain amount of insight into the mental processes and attitudes of the various people who speak. So, on the whole, one feels that they had better be reported until such time as the habitual speakers run dry of ideas.

On Monday, Feb. 7, the Royal Aeronautical Society held its first House Dinner at the Royal Aero Club, where Mr. Frisbee and his satellites had evidently prepared thoroughly to disperse that lean and hungry look which seems to afflict so many high-brow scientists. Unfortunately the scientists of the Royal Aeronautical Society, the very people who ought to have been there to receive enlightenment from the discussion, were the only people who stayed away.

Looking round the tables one saw only the same crowd of more or less practical aviators whom one meets on all occasions when two or three are gathered together in the name of Aviation. Nevertheless one must confess that this gathering did produce a few speakers who had not previously been heard, especially the opener of the discussion, Air-Commodore J. G. Weir, whom one would gladly hear again on practical subjects.

Colonel the Master of Sempill, opening the proceedings, expressed the gratitude of the R.Ae.S. to the R.Ae.C. for the facilities extended. He asked Air Commodore Weir, as an experienced pilot and a competent engineer, to express his feelings freely on the subject of comfort in air travel as experienced in the de Havilland Hercules on its first voyage to Cairo.

THE DISCUSSION.

Air-Commodore Weir explained his presence by saying that he had had the misfortune to dine with Colonel Sempill and had had put to him the fantastic proposal that he should open this discussion, and that next morning he found that he could not get out of it.

He said that he had formed a number of ideas on the subject of Comfort in Air Travel and believed that the most important component in comfort was a sense of security. Most passengers lacked that sense of security. It did not necessarily mean that they demanded absolute safety. But we must at any rate persuade passengers into feeling safe.

The fact was evident that the figures for the number of passengers carried on the air lines were not rising as they should.

As to physical comfort, bumps were the worst drawback. A cargo of passengers who had had a good trip in good weather were a good advertisement for aviation, but passengers who had had a bumpy journey were the worst advertisement. People who had to do with air transport were too apt to regard bumps as an Act of God. He suggested that they ought to find the routes where there were the least bumps.

Another source of anxiety was engine failure. Having three engines would remove that worry. Originally multiple engines were forced on us by the low power of engine-units, but now they were a cardinal principle. In future stand-by engine capacity would be necessary for a certificate of airworthiness.

The size of machines was also important. At first a covered machine was regarded as the maximum of comfort. But mere size was impressive. Being able to walk about was conducive to comfort. He looked forward to a promenade deck, which even if it were not used would induce travellers to go by air.

Noise was a source of discomfort. Silencing engines had little to do with it. He mentioned that vast improvement had been made in abolishing noise in modern sleeping cars, and that old travellers always booked places in the modern cars, leaving the old and noisier rolling stock to be filled up by casuals. Which showed how much regular travellers were influenced by noise.

As to small machines, he thought that side-by-side seats were well worth while. It was pleasant to be able to hold hands.

Also the engine ought to be taken away from the front of the machine.

Referring to the Hercules specifically, he said that there was a petrol pump in the fuselage, and they were always aware of the fact. The chairs were, he believed, the result of considerable thought, but they were not a success.

Lieut.-Col. Brisrow said that comfort was purely a matter of money. It was expensive, for example, to carry one engine as extra plant. The engines we now used were variations of Service types. They would have to be altered to make them less noisy. Gears and valves were noisy.

Wires, dynamos and other fittings were also noisy. To silence the



THE BLACKBURN AIREDALE.—A three-seat reconnaissance monoplane fitted with the 385 h.p. Siddeley Jaguar engine. The machine has wings, of thick section, which fold alongside the fuselage.

exhaust some 10 to 15 per cent. of power would have to be sacrificed. He agreed that pushers would be quieter than tractors.

As to bumps, he said that pilots ought to realise that passengers had less experienced insides than their own. Referring to present operating costs, he said that, as every machine was run at a loss anyhow, a greater number of passengers meant a greater loss.

MAJOR MAYO said that bumpiness in the air was like roughness at sea. He asked whether the design of ships had helped in decreasing roughness. He said that larger machines might diminish bumps, which were of limited dimensions.

The size of aircraft would increase as the volume of traffic increased. Then we should be able to use more and more engines.

He said that much of the noise was due to the airscrews. It might be decreased by gearing down the engines and running the screws with a lower tip-speed.

MR. HANDLEY PAGE remarked jestingly that he had been asked to reply on behalf of the Air Ministry. Apropos comfort, he said that he wanted to preach to the converted who happened to have wealth so that we might have a building which would house the united Aeronautical Societies of this country.

He remarked that aircraft of large size seemed to exercise a fascination on the Press, who presumably thought of circulation. He did not agree with Major Mayo on geared airscrews, because the gears screamed. Also he wanted less noise from the valves.

As to cabins, he wanted more space and better ventilation, because at present half the passengers wanted the windows open and half wanted them shut, and then they quarrelled.

He said that the salvation of aviation did not lie in big construction or metal construction, and he advocated a sane number of engines.

To make flying safe they must have machines under proper control when stalled, also, for convenience of passengers, air lines must fly at night. And he added that there was no object in going to Paris between midday and three o'clock, when one could do it anyhow between midday and six-thirty or so by surface transport, because in any case there was nothing to do in Paris between 3 p.m. and 6.30 p.m.

PROFESSOR A. M. LOW, quoting Sir Alan Cobham, said that aviation was a failure so long as it was remarkable. He pointed out that comfort could be measured by accelerometers. Increased speed did at any rate decrease the time of discomfort. And he said that noise alone would cause sickness.

MR. J. D. NORTH reminded the gathering that there is an economic size at which aeroplanes stop growing. And he also reminded them that the tip speed of airscrews is more important than revs. per minute.

MR. ALAN CHARLTON said that noise was less noticeable in all-metal machines. Turbine wheels in exhaust pipes might stop the periodic throbbing in the pipe and might drive super-chargers. Referring to crude oil engines or heavy oil engines, which he admitted were often crude and heavy, he said that they showed little advantage on a 300 mile flight. Their advantage came in on long-range work. He pointed out that engine-mountings were not designed to stop vibration as they should be.

CAPT. SPRY LEVERTON agreed that people did come out of aeroplanes looking like death. He said that it was comparatively jolly when the whole lot were sick together. (Somebody at the top table interjected a remark about "Community sickness.") He thought that the drumming of the walls had a good deal to do with air-sickness, and said that under any circumstances when walls began to move about it was a serious matter.

AIR VICE-MARSHAL SIR VYVEL VYVYAN said that people were more likely to travel in three-engined machines owing to the sense of security which they gave. He hoped that air lines would soon pay their way. At present they lost in the Winter and paid in the Summer. For very long journeys he believed in airships flying by night. He also believed that aeroplanes would work the branch lines.

MR. GRIFFITH BREWER recalled the fact that the original Wright machine was a side-by-side pusher.

MR. HERMAN VOLK, speaking as a passenger since 1911, agreed that a promenade deck was desirable as it would give the same sense of comfort as a gangway seat gave one in the theatre.

MAJOR BLACKLEY said that pilots were now doing navigating courses and would learn where to avoid bumps. At present they did not fly high because climbing cost too much in petrol.

MR. HINCHLIFFE said that pilots could do a lot to avoid bumps, and that in his experience not 5 per cent. of the passengers were sick.

MAJOR HEMMING said that suggestion had a good deal to do with air sickness and advised camouflaging the spittoons.

MR. C. G. GREY said that having flown with Mr. Hinchcliffe he quite understood why so few of his passengers were sick. He had himself flown to Holland with Mr. Hinchcliffe. It was a very rough day and at the end of the journey the people on the ground remarked what a terrible passage they must have had, but as a matter of fact, thanks to Mr. Hinchcliffe's hands, the machine had hardly moved at all.

The speaker recalled the case of a well-known aircraft constructor who had been in the habit of flying with one pilot who was a very fine aviator, but always let the machine fly itself. After some time the constructor went up with another pilot, who was looking for a job, and to his surprise found that although the weather looked as if it ought to be bumpy the machine was flying quite steadily. Then he looked at the pilot and saw that he was working like sin all the time and anticipating the bumps. That pilot got the job.

As to seats in aircraft, he said that he believed that makers of seats never sat down. There had not been a comfortable seat in London since the old stalls were taken out of the Alhambra. And he believed that seat designers began at the wrong end, by designing with their heads.

CAPT. GOWRAY DE HAIVILLAND suggested insulating the cabins of aircraft from noise.

CAPT. TYMMS said that comfort is a matter of nerve reactions. Experiments had been made in insulating materials and the results were available at the Air Ministry for designers. He recommended flying at 10,000 feet where there was almost always sunlight and fresh air.

MR. BRAMSON agreed that mental comfort depended on a sense of safety. The best measure of safety was the opinion of the insurance people. If one could insure against fatal accident for £1,000 for a premium of 1s. per flight then the public would be happy.

LEUT.-COL. MERVYN O'GORMAN said that he was delighted with the astuteness of the lecturer in wrapping comfort up in safety. If one could keep passengers busy and happy they would forget danger and discomfort. Three engines allowed pilots to fly safely out of sight of the ground above the clouds and free from bumps.

He gave an interesting dissertation on what were bearable and what were unbearable noises and instanced the noise of high-speed cars which actually pleased their drivers, who felt unhappy when the noise diminished.

He said that control below stalling point was conducive to confidence and so to comfort.

A PERSONAL OPINION.

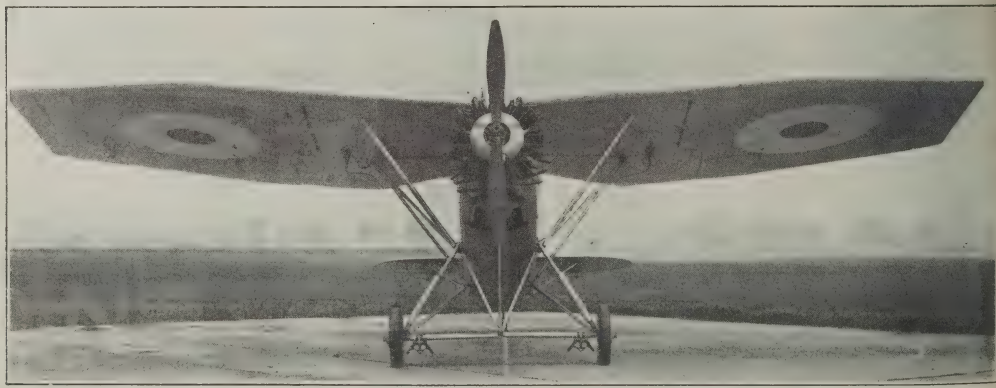
As to one's own personal opinions which one was unable to express at the meeting, one quite agrees that comfort is really a matter of confidence in the security of flying. But there are two kinds of people to whom it is necessary to give confidence. One is the entirely ignorant person who believes anything that is told him by a supposedly competent authority. The other is the person, like oneself, who knows just a little too much to be confident in anything.

Personally one spends most of one's time during a flight watching vibrating wires and flapping fabric, wondering whether the wires are going to break or the fabric is going to burst, and wondering whether all the nuts have got adequate split-pins, and wondering with every change in the note of the engine whether the pilot is doing it on purpose or whether he cannot help it, and where and how he will land if his engines let him down.

One has enough confidence in the average air-line pilot to believe that he will land at once if he spots anything wrong. But then one wonders whether he can be trusted not to stall the machine in landing and one wants anti-stall indicators and slotted wings and things to make quite sure about it.

As general knowledge grows, as it is growing very rapidly at present, any ordinary passenger in an aeroplane will need to be convinced about the indication of stalling and about control below stalling speed. So the sooner we set about fitting the necessary gadgets, in spite of the prejudices of pilots, the better it will be for the passenger traffic.

Three engines do not remove worry, because there is always



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3. Cairo to Aden and back by 2 Vickers' aeroplanes—18,000 ENGINE MILES.

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a chance of a burst airscrew damaging a wing or the fuselage, and compelling an immediate descent. So there is practically just as much need for intermediate landing grounds on an air line whether one engine is used or a dozen. The only difference is that with multiple engines forced landings are not likely to be so frequent.

As to noise, one is perfectly certain, as one has said on many occasions, that the way to remove most of the noise is to make machines into pushers instead of tractors. Mr. Chorlton was right in saying that metal machines are quieter than ordinary machines. But that is probably because all the all-metal machines which are used on air lines are thick-wing monoplanes, and so have not a forest of struts and wires and engine mountings and things for the rotating slipstream to slap up against.

Also one quite agrees with Mr. Handley Page that ungeared engines are preferable to geared engines because of the screeching of gears. In these days of metal airscrews there is no reason why power should be wasted in gearing.

One has no faith in the enormously large aeroplane, for several reasons. Firstly, there is the fact that unless absolutely new methods of construction are devised the weight of a big aeroplane goes up out of proportion to its usefulness when it passes a certain size, as Mr. North said.

Secondly there is the fact that the real success of air line work depends on frequency of service, and if we are going to have large machines carrying a heap of passengers that means decreasing the frequency of service. Does anyone imagine for a moment that the London Tubes would pay if they ran one enormous train every hour instead of

small trains every two or three minutes? For this reason one entirely disagrees from Major Mayo's opinion that the size of machines will increase, at any rate to anything very huge, as the traffic increases.

Also one disagrees absolutely from Major Mayo's opinion that noise can be decreased by gearing down the engine and using slow-running screws. The screech of the gears and the battering of the slipstream of large screws would be far worse than the present state of affairs.

Thirdly, one doubts very much whether a big machine is actually as comfortable as a comparatively small one. From one's own admittedly limited experience one has formed the opinion that the difference is very much like the difference between a fast and lively car on a bumpy road and a motor-bus on a similar road.

As to bumps, one endorses Colonel Bristow's advice to pilots that they should realise that passengers have less experienced insides than their own. Nevertheless, thanks to the amount of motoring that people do in these days, and the abominable state of our roads, the average person's inside is much less delicate than it used to be.

There is a great deal to be said for Professor Low's remark that increased speed decreases the time of discomfort. It is much better to be uncomfortable or sick for a couple of hours than it is to be less uncomfortable and sick for five or six hours on end.

Finally, one agrees absolutely with Mr. Bramson's remark that when the insurance people will insure the individual passenger for a flight say from London to Paris for £1,000 at a premium of 1s. air travel may be considered a success.—C. G. G.

ON OPPORTUNITIES FOR ENTERPRISE.

The attention of the British Aircraft Industry is particularly drawn to two announcements which follow these notes. One is the organisation of the Aero Show at Prague, which will be held between June 4 and June 16, and the other is the programme of the International Flying Meeting which will happen at Zürich between August 12 and August 27. Both these events will be of very considerable importance to the Aircraft Industries of Europe. And if the British Aircraft Industry intends to do business on the Continent it ought certainly to be represented both at Prague and Zürich.

It is all very well for British manufacturers of all sorts to state in their advertisements that they make the best goods in the World of their own particular kind, and it is all very well for English trade papers to insist that British goods are the best. Both statements may be absolutely true, but foreign buyers need to be convinced.

There is a saying in the States that if you want to convince an American of anything he says "You gotta show me," but if you want to convince a man from Missouri he says "You gotta show me—and put it in ma hand." On these lines one would like to impress on the British Aircraft Industry that to do business with the Central European nations we must show them our aircraft, and so far from putting up notices "Do not touch the exhibits" we must invite responsible persons to climb all over them and even to fly in them.

There is a saying about Iceland that, as there is so little export and import trade, the inhabitants live by taking in one another's washing. Trade in British aircraft has not, fortunately, quite reached that stage. But judging by the fate of the British motor trade until quite recently, that is about what is likely to happen unless the aircraft trade makes a much more strenuous effort to get foreign business than did the motor trade in the same stage of its development.

Instead of going and competing in international races and sending machines to the automobile shows on the Continent, the motor trade was quite content to get the home market and to sit and grumble because the people of the British Dominions and Overseas bought American cars. And it is only during the last two years that British automobiles have begun to make any serious headway in markets overseas.

One hopes that the British aircraft trade will learn the lesson offered to them at the expense of the motor trade. British aircraft at the last Prague Show created a very good impression abroad and actually brought business. And though few direct orders came from the exhibit at Cöthenburg, our display there did at any rate raise the prestige of British aircraft and of British aviation in general. Therefore surely it is worth the while of the Aircraft Industry to co-operate as it did on those occasions, but to a still greater extent, and make a show, both in the Exhibition at Prague and in the Competition at Zürich, which will convince Europe to "Buy British."

THE SWISS INTERNATIONAL MEETING.

The *Aéro-Club Suisse* are organising their second International Aviation Meeting, which is to be held at Zürich between Aug. 12-27, 1927.

The following programme has been arranged:—

International Events:

The *Circuit des Alpes* for the *Coupe Challenge Chavez-Bider* (value frs. 10,000) and frs. 30,000 in prize money.

It is well to note that the price of the Swiss Franc is 25 to the £. Consequently comparatively few francs make a pleasingly handsome prize.

This competition will be held over a three-stage circuit as follows:—Zürich (Dübendorf)—Lausanne (La Blécherette), Lausanne—Milan, and Milan—Zürich.

It will be open to all commercial aircraft carrying a minimum useful load of 200 kgs. and the winner will be decided on the following formula:—

V. P. C. for single-engined aircraft and $2M \frac{V. P. C.}{E}$ for multi-engined aircraft.

Where V = the average speed over the circuit, P = the useful load (minus petrol, oil and water) carried, E = the weight of petrol required to cover the circuit, M = the number of engines, and C = a coefficient derived from the various constructional qualities of the machine.

The *Circuit des Alpes* for the *Coupe Capitaine Echard* (value frs. 3,000) and second and third prizes of frs. 2,000 and frs. 500 respectively.

This competition is reserved for military pilots flying standard service aircraft. It will be held over a three-stage circuit as follows:—Zürich—Thoune, Thoune—Bellinzona, and Bellinzona—Zürich.

The winner will be the pilot who covers the circuit in the shortest time.

The Championnat International de Virtuosité

This aerobatic competition is open to single-seat aircraft, and the winner, to be decided on points, will be proclaimed "The International Champion of Virtuosity" and in addition receive an *Objet d'art* (value frs. 1,000) and a prize of frs. 500.

The Championnat International de vitesse sur Circuit.

This competition will be decided over a 65 km. circuit to be covered three times, the winner to receive the title of "The International Speed Champion," an *Objet d'art* and frs. 3,000 in prize money.

The entry lists for all these competitions close on July 15 and full particulars of the various contests may be obtained from the Secretary, *Aéro-Club Suisse*, Palais Fédéral, Bâtiment Nord, 52, Berne.

Other competitions which are reserved for pilots of the *Aviation Militaire Suisse* are (1) Landing competition (with and without obstacles); (2) Squadron relay race; (3) aerial photograph competition; (4) bombing competition, and (5) radio competition.

All these events will be held in the following order:—

Aug. 12-13.—Eliminating trials for national events.

Aug. 14.—National Meeting. Finals of national events and other aerial attractions.

Aug. 15-20.—Circuit des Alpes, Coupe Chavez-Bider and Coupe Capitaine Echard. Eliminating trials for the international events.

Aug. 20.—Finals of international events and other aerial attractions.

THE PRAGUE AERO-SHOW.

Under the auspices of the President of the Czechoslovak Republic and the protectorate of the Government, The Fourth International Aeronautical Exhibition will be held in the Industrial Palace, Prague, from June 4-16, 1927.

The Exhibition is being organised on a truly international basis and invitations have been sent to all industries which are prominent in aviation.

One hears on fairly good authority that the German Aircraft Industry will be well represented and it is hardly conceivable that the French Industry will refrain from repeating their support given to the 1924 Exhibition.

The Czechoslovak Industry, young as it is, has now, by its success abroad in competition with other nations, established itself as an industry to contend with, so that it will be very much in the interests of British Aviation that some British representation be found at Prague. The exhibits will include aeroplanes, balloons, airships of all types,

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models of such types, aero-engines, accessories and materials necessary for the construction of the above, air line equipment as well as machinery, tools, etc.

Applications for space must be submitted before Mar. 15, and with each application must be sent 1,000 Czechoslovak Crowns, as an advance payment on space. The location of the space will be determined by the Exhibition Management with special regard to the order in which applications are received.

The charges for space are: For aeroplanes: Up to 150 sq. m., 60 Crowns per sq. m.; from 150—300 sq. m. a reduction of 10 per cent. and above 300 sq. m. a reduction of 20 per cent. will be allowed. For engines: Up to 100 sq. m., 150 Crowns per sq. m. and above 100 sq. m. a reduction of 10 per cent. will be allowed.

For auxiliary industries and others; Up to 50 sq. m., 100 Crowns per sq. m., above 50 sq. m. a 10 per cent. reduction will be allowed. The charge for open air space outside the pavilions will be 20 Crowns per sq. m.

With regard to transport of exhibits to and from Prague it is to be noted that these will be subject to reduced freight rates granted by the Ministry of Railways, and the Ministry of Finance will admit the entry of goods of foreign origin free of Customs duties on notification.

For aircraft proceeding by air to Prague the aerodrome at Kbely is available within a short distance from the city and adequate hangar space is available and the officials will give all the necessary assistance.

Full particulars with regard to the Exhibition, rules and regulations, etc., will be supplied on application to the Secretary, Aeroklub Republiky Československé, Prag-Vinohrady, Pochova Tr. 8, Czechoslovakia.

THE CONFERENCE OF THE F.A.I.

Lieut.-Col. Mervyn O'Gorman, C.B., who attended the Conference of the *Fédération Aéronautique Internationale* on Jan. 25, on behalf of the Royal Aero Club, presented his report to the Committee of the Club on Feb. 9.

The Schneider Trophy.—It was decided to hold the Contest in 1927 between Sept. 1 and Nov. 15. Future contests are to be held annually.

Customs Carnet.—The proposal of the Royal Aero Club that the Carnet should be available to aircraft used for public transport was accepted by the F.A.I.

Light Aeroplane Records.—The following classification for Light Aeroplanes for record purposes was accepted:—

Class I.—Weight empty, up to 200 kilograms.

Class II.—Weight empty, over 200 kilograms, to 350 kilograms.

Class III.—(Two-seater), weight empty up to 400 kilograms.

In Class III both pilot and passenger must be carried.

These three Classes come into operation on May 1, next.

Nationality of Records.—At the Zürich Conference in August next, the question of the nationality of records will be considered. The Italian Aero Club has proposed that it should be that of the Pilot.

A unanimous vote of thanks was passed to Lieut.-Col. M. O'Gorman for attending the Conference on behalf of the Club.

THE AIR LEAGUE CHALLENGE CUP.

The proposal of the Light Aeroplane Clubs that the Air League Challenge Cup should be offered for an Inter-Club Competition was considered by the Committee of the Royal Aero Club on Feb. 9, and unanimously agreed to.

The Light Aeroplane Clubs are to be consulted as to the nature of the Competition.

THE SCHNEIDER TROPHY, 1927, COMMITTEE.

A Special Committee was appointed by the Committee of the Royal Aero Club on Feb. 9 to take in hand all arrangements in connection with the British Competitors. The following are the members:—

Royal Aero Club: Lieut.-Col. M. O'Gorman. *Air Ministry:* One Representative. *Aircraft Constructors:* One Representative each. *Engine Constructors:* One Representative each. *Secretary:* H. E. Perrin.

Presumably "one representative each" means one representative for each firm which is concerned in building a challenger for the Trophy, and not one representative for each of the twenty or more firms which construct aeroplanes and engines.

AN AMERICAN RECORD-BREAKER.

Some time ago THE AEROPLANE recorded the fact that Lieut. Al. Williams, U.S.N., had retired from the Service immediately after being promoted. Later the fact was made known that Lieut. Williams intended to fly in the next Competition for the Schneider Trophy, and that a special machine was being built for him.

The latest information is that the machine has been designed by Messrs. Booth and Thurston, formerly of the Curtiss Company, and afterwards of the Wright Aeronautical Corporation with which latter firm they designed the Wright racer which unfortunately was crashed in the Solent before the Competition in 1923, at Cowes. They also designed the Napier-engined flying yacht which was built for Mr. Vanderbilt, Junior.

Their latest ship is being built by Mr. Kirkham, also late of the Curtiss Co., at whose plant on Long Island the Vanderbilt yacht was built. It is said to be a biplane and to be driven by a new Packard "four-bank" engine of

something over 1,200 h.p. And it is said that its speed is to be over 300 miles an hour.

Rumour has it that Mr. Al. Williams is taking a special course of training to fit him to stand the physical and nervous strains of flying and cornering at such speed. The building of the machine is being financed by a group of young sportsmen, and, in view of the Kirkham connection one guesses (perhaps wrongly) that there is Vanderbilt money in the venture. And in any case the U.S. Navy is behind it, morally if not financially.

It is a fine effort, and one wishes it good luck and freedom from mishap. The American papers say that the United States will not enter for the Schneider Contest,—but one never knows.—C. G. G.

THE SCHNEIDER TROPHY CONTEST.

The two racing Napier engines for the Supermarine S.5 and the Gloster IV have now been delivered. So these machines should be flying very shortly. These Napiers are said to have a reduced frontal area and are alleged to give nearly 900 h.p.

The Bristol Mercury for Lt.-Col. W. A. Bristow's Crusader has not yet arrived. For some time there has been difficulty in getting sparking plugs to stand the high revolutions and high compression. One gathers that these troubles are nearing the end.

Very shortly we shall be embroiled in a tremendous rush of secret Schneider Committees and rumours and all the inevitable absurdities to prevent the public hearing anything about the event, unless the Air Ministry Departments concerned have turned over a new leaf.—G. D.

THE UNITED STATES AND THE SCHNEIDER TROPHY.

On Feb. 9, Mr. Wilbur, Secretary of the Navy Department, announced that the U.S. Navy would not participate in the 1927 Schneider Trophy Competition to be held at Venice in September, owing to lack of funds.

AN ITALIAN SPEED RECORD ATTEMPT.

The Italian Air Ministry is converting the Macchi M.39 racing seaplane (800 h.p. Fiat A.S.—1 engine) into a land-plane with a view to attacking the World's Speed Record.

Major M. di Bernardi who won the Schneider Trophy and subsequently put up a World's Seaplane Speed Record on this machine will be the pilot.

A FLYING CLUB FOR EAST ANGLIA.

On Friday, Feb. 25, a public meeting, convened by Mr. C. R. Bignold, the Lord Mayor of Norwich, and the High Sheriff, Sir George Chamberlin, is to be held in the Blackfriars' Hall, Norwich, to organise a Flying Club in that city. The occasion is particularly notable because this is the first time a flying club has been formed primarily on the initiative of the City Fathers of its place of origin.

All the existing flying clubs have been organised by a few enthusiasts who have managed to enlist the support, more or less enthusiastic, of their local notabilities. The fact that the City of Norwich should set about forming its flying club with the elected representatives of the city as the prime movers is a matter of historical interest.

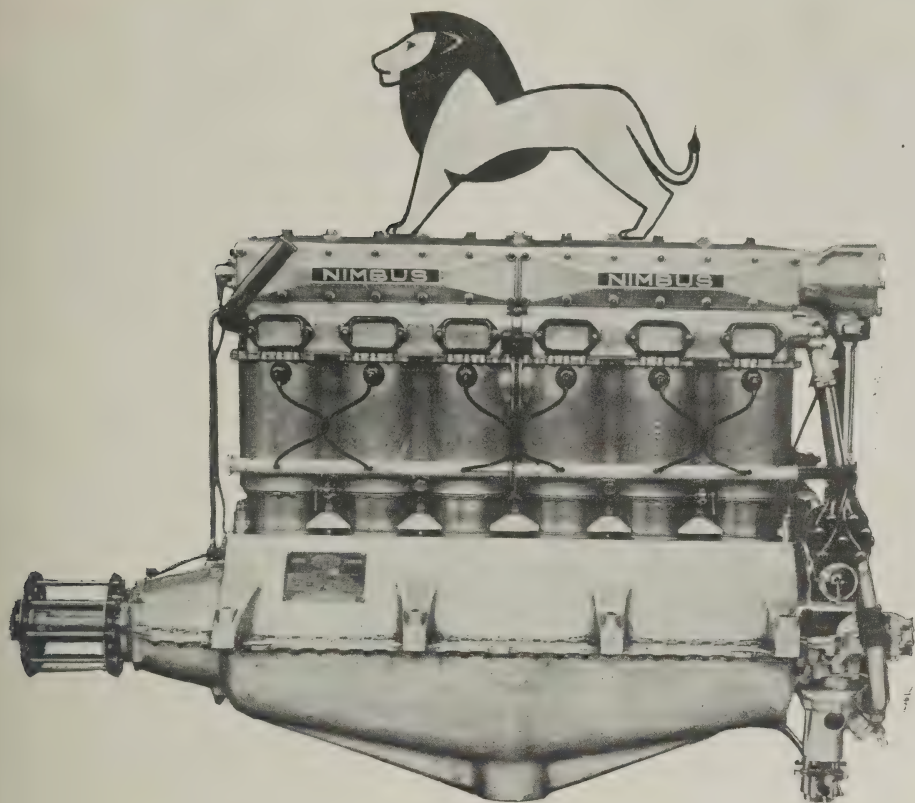
The meeting on the 25th will be addressed by an official of the Department of Civil Aviation, probably Lt.-Col. Ivor Edwards, Technical Adviser to the Department of Civil Aviation.

The Lord Mayor and the High Sheriff have been promised the support of the Members of Parliament for the city, and a number of influential citizens who are already interested in flying are joining this praiseworthy movement.

Members of the Royal Aero Club, the Lancashire Aero Club, the Newcastle-upon-Tyne Aero Club, the Yorkshire Aeroplane Club and the Hampshire Aeroplane Club have promised to come to Norwich by air on the 25th to attend the meeting. The de Havilland Aircraft Company are sending a Moth, and Boulton and Paul Ltd., whose good work in developing all-metal aircraft construction has already made Norwich famous among the aeronautical communities of the World, hope to have some of their machines in the air on the great day. Therefore, provided that the weather is kind, the City of Norwich should certainly be stirred to proper state of air-mindedness on the day of the meeting.

The *Eastern Daily Press* published on Feb. 9 a lengthy interview with the Lord Mayor, which itself should go far to convince the Eastern counties that a flying club "should have a permanent home in the capital city of East Anglia." From this one gathers that, thanks to Boulton and Paul Ltd., shed accommodation and club headquarters will be provided, subject to the approval of the Air Ministry, at the famous Norwich Aerodrome, well-known to so many past and present pilots of the Air Force. The Lord Mayor has already had the offer of one or two machines for training; and general club purposes on what seem to be particularly advantageous terms.

One wishes Norwich every success in this enterprise which, when it succeeds, will be most valuable to the progress of aviation in this country.—C. G. G.



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE SECRETARY OF STATE FOR AIR.

The Secretary of State for Air and the Lady Maud Hoare sailed from Alexandria on Feb. 11, for Paris. This part of the journey is the only section of the tour from London to Delhi and back, which has not been done by air.

Sir Samuel Hoare and his party were to fly from Paris to Croydon on Feb. 16.

DISARMAMENT AND CIVIL AVIATION.

The following *résumé* of the machinations of the Committee of Experts in Civil Aviation appointed by the League of Nations, which has just concluded its sittings in Brussels, is extracted from *The Times*.

The points dealt with by the Committee were:—

- (1) To examine the economic consequences which would follow a limitation of aerial armaments; and
- (2) Proceeding on more general lines, to submit its observations and suggestions on the economic consequences of any method of limiting air armaments taking into account the needs of civil aeronautics.

The British delegates, Group Captain W. F. MacNeece, R.A.F., and Lieut.-Col. I. A. E. Edwards, Deputy Director of Air Transport, were in favour of a system under which military interference with civil aviation was reduced to a minimum.

France, Belgium, Rumania, and Poland appeared to consider the problem chiefly from the military point of view. The British opinion was that civil aviation ought to be able to develop freely as far as possible, outside the realm of military activities. With different types of aircraft the two branches of aviation should develop in different directions.

In its resolutions, the Committee states that it is essential that no hindrance to the development of civil aviation should be produced by the application of any system for the limitation of aerial armaments. The following were among the resolutions adopted:—

- (1) It is desirable that the development of civil aviation should be directed solely towards economic ends and should be independent of military interests.
- (2) Civil aviation should be organised on autonomous lines and every effort should be made to keep it separate from military aviation.
- (3) If States intervene in any capacity, whether directly or indirectly, in civil aviation undertakings (private or State-owned), it is desirable that the State departments dealing with the matter should be independent of the departments dealing with military aviation.
- (4) It is desirable that Governments should refrain from prescribing the use of military features in civil aircraft *matériel*, so that this *matériel* may be constructed for providing the greatest possible measure of security and most economic return. In this connection and with a view to differentiating still further between *matériel* of civil and that of military aviation, it is considered particularly desirable that as far as possible the use of military aviation *matériel* in civil aviation undertakings and in the operation of air transport lines should be avoided.

THE HAMBLE AIR PAGEANT.

If one can judge by the preliminary staff work the Hamble Amphibious Air Pageant, which is to take place at Hamble Aerodrome, Southampton, on May 15, should be a great success. One has been very much impressed by the business-like methods with which each of the various departments conducts its business. The manner in which the Pageant is being organised shows that those concerned with it have a natural or acquired gift for staff work.

Any owners of aircraft either public or private who are anxious to enter for the Pageant, at which there will be contests for substantial prizes, are invited to get in touch with Flt. Lt. C. Crawford, R.A.F., "Five-Ways," Lee-on-Solent, Hants.—G. D.

BRITISH ENTERPRISE ABROAD.

The Blackburn Aeroplane and Motor Co. Ltd., who are responsible for the organisation and operation of the Greek Government Aircraft Factory at Phaleron, near Athens, have produced there a training aeroplane which was successfully flown on Feb. 11.

The machine was designed largely by Greeks under British supervision, and only eight weeks elapsed between the beginning of the design and the first test flight.

CIRCULATION.

It has been announced that Mr. Lester D. Gardner, Publisher of *Aviation*, New York, accompanied by Mrs. Gardner, will attempt to circumnavigate the World, mostly by air, in twenty-four days, during the coming Spring.

He plans to use only regularly established commercial air lines and will not employ any special aeroplanes, automobiles, trains or boats.

His route will be westward and from New York to San Francisco he hopes to travel by the Transcontinental passenger service which is now open to contract and will shortly be in operation.

New Japanese air lines will connect the Pacific steamer with Pekin via Korea. From Pekin to Moscow he will travel in the first machine on the Pekin-Moscow air line, to be opened in the spring by Deutsche Luft Hansa and the Soviet Government.

From Moscow to England he will travel over the older-established air lines with which he became familiar on his 1926 "Air Trotting" tour of Europe.

The actual date of starting is undecided as it is necessary to fit in the sailing and arrival dates of steamers with the various air line schedules.

As a basis, he has reserved seats for himself and Mrs. Gardner on the first machine to fly from Pekin to Moscow and as soon as the date of the departure has been fixed by the operating company he will proceed with his plans.

In 1926 two Americans, Messrs. Evans and Wells circled the World in 28 days 14 hours 36.5 seconds using air transport where possible. These two travellers kept moving day and night with very little rest. Major Gardner believes it will be possible to reduce this time by four days and yet fly on only two nights.

PRACTICAL ADVERTISING.

It will be remembered that last summer Lieut. J. H. Doolittle, U.S.A.C., was granted leave of absence to proceed to South America to demonstrate the Curtiss P.1 Hawk to the various Government authorities. In September, 1926, shortly after his arrival, he flew from Buenos Aires to Santiago across the Andes in record time.

He was later unfortunate enough to fall off a high ladder onto a concrete hangar floor, fracturing his hip, and although he made one or two flights with his leg in plaster of Paris he was compelled to return to the United States to have his injury properly treated.

To carry on the good work started by Lieut. Doolittle, Lieut. G. T. Cuddihy, U.S.N., has also obtained three months' leave to proceed to South America. Almost immediately following his arrival in Buenos Aires, and using the same Curtiss Hawk, he flew across the Andes to Santiago, Chile.

From this it would appear that the Government of the United States are making a determined effort to secure an aircraft market in South America, and the methods used are worthy of consideration by our Air Ministry.

Both Lieuts. Doolittle and Cuddihy can be considered among the finest racing and single-seat pursuit pilots in the World. The Curtiss Hawk is the very latest single-seat pursuit development in the United States. Such a combination should make a very good impression where it is most needed, and one can only wish the Curtiss Company, who are responsible for this enterprise, the very best of luck.



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THE ROYAL AIR FORCE.

The London Gazette.

Feb. 8.

GENERAL DUTIES BRANCH.—The following Plt. Offs. are promoted to the rank of Flg. Off.:—R. L. Burnett (Sept. 17, 1926); F. H. Hannaford (Dec. 31, 1926); F. S. Hodder (Jan. 18, 1927); F. L. F. Beaumont is placed on half-pay, scale B, from Jan. 20 to 23 inclusive; F. D. Oliver, Lt. (E.), R.N., Flg. Off., R.A.F., relinquishes his temp. comm. on return to Naval duty (Jan. 22).

STORES BRANCH.—Plt. Off. P. S. Rickard is promoted to the rank of Flg. Off. (Feb. 10).

MEDICAL BRANCH.—Flg. Off. G. J. Griffiths is promoted to the rank of Flt. Lt. (Feb. 11).

RESERVE OF AIR FORCE OFFICERS.—Plt. Off. A. Prescott is promoted to the rank of Flg. Off. (Dec. 30, 1926); Plt. Off. on probation S. L. F. St. Barbe is confirmed in rank (Sept. 14, 1926).

The following Flg. Offs. are transferred from Class A to Class C:—A. F. Wynne (Sept. 1, 1926); H. P. Morris (Jan. 23); B. A. Davy (Jan. 29). The following Flg. Offs. are transferred from Class B to Class C:—R. Hamilton (Oct. 24, 1926); A. E. Pitcher, M.M. (Feb. 5). Plt. Off. A. Barron relinquishes his comm. on completion of service (Feb. 5).

Appointments.

Week ending Feb. 14.

GENERAL DUTIES BRANCH.—Wing Commander D. Harries, A.F.C., to R.A.F. Depot, Uxbridge, Supernumerary, pending posting on transfer to Home Estab., 20/1.

Squadron Leader H. H. MacL. Fraser, to No. 2 F.T.S., Digby, on transfer to Home Estab., 10/1.

Flight Lieutenants G. H. Cock, M.C., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 20/1. W. Underhill, D.S.C., C. S. Richardson, M.B.E., G. H. Martingell, A.F.C., M. C. Dick, M.C., and J. L. Kirby, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 2/1. R. H. Hammer, M.C., to R.A.F. Station, Tangmere, on transfer to Home Estab., 2/1. P. R. T. J. M. I. C. Chamberlayne, A.F.C., S. B. Harris, D.F.C., A.F.C., and H. M. Moody, M.C., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 10/1. J. C. Andrews, M.B.E., to Inspector of Recruiting, on transfer to Home Estab., 20/1. T. O. Oakes, to No. 2 Sqn., Manston, 4/2. H. H. Down, A.F.C., to R.A.F. Training Base, Leuchars, instead of to R.A.F. Base, Calshot, as previously notified, 28/1. L. B. Duggan, to No. 23 Group H.Q., Grantham, 20/1. F. W. Walker, D.S.C. A.F.C., to No. 10 Group H.Q., Lee-on-Solent, 1/1. R. Jope-Slade, D.S.C., to R.A.F. Station, Duxford, 1/2. G. E. Wilson, to R.A.F.M.T. Depot, Shrewsbury, 13/1.

Flying Officers W. G. Pudney, to No. 22 Sqn., Martlesham Heath, 14/2. C. McC. Vincent, D.F.C., to School of Photography, S. Farnborough, 14/2. C. Walter, to No. 19 Sqn., Duxford, 17/2. F. W. Field, to No. 11 Sqn., Netheravon, 2/2. C. Dollery, M.B.E., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 10/1. T. O. Oakes, I. N. C. Clarke, D.S.C., L. H. Cooper, and J. C. Jeffery, M.C., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 2/1. G. A. F. Bucknall, to R.A.F. Station, Tangmere, on transfer to Home Estab., 2/1. G. H. Stainforth, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 20/1. B. F. H. Harding, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 2/1. A. L. MacMillan, to Armament and Gunnery School, Eastchurch, 15/2.

Pilot Officers J. G. Parkin, to No. 16 Sqn., Old Sarum, 12/2. W. E. W. Grieve, to 503 Sqn., Waddington, 18/2. F. S. Smythe, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 23/1.

MEDICAL BRANCH.—Group Captain H. V. Wells, C.B.E., to H.Q., Coastal Area, for duty as Principal Medical Officer, 1/3.

Wing Commander J. McIntyre, M.C., M.B., M.A., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 10/1. C. V. D. Rose, to R.A.F. Depot, Uxbridge, pending posting as Principal Medical Officer, 11/4.

Squadron Leaders P. H. Young, M.B., to Hospital Orderlies Training Depot, Halton, 1/2. R. A. G. Elliott, M.B., D.P.H., B.A., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 20/1. A. J. O. Wigmore, M.B., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 2/1. E. N. H. Gray, D.P.H., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 2/1.

Flight Lieutenants W. G. L. Wambeck and E. C. K. H. Foreman, to Hospital Orderlies Training Depot, Halton, 1/2. C. V. D. Rose, to No. 216 Sqn., Egypt, 13/1. T. McClurkin, M.B., D.P.H., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 2/1. C. A. Lindup, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 10/1. W. J. G. Walker, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 20/1. Flight Lieutenant (Q.Mstr. Medical) E. Bennett, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 2/1; to R.A.F. Hospital, Halton, 23/3.

Flying Officers P. D. Barling, M.B., to No. 4 F.T.S., Egypt, 7/1. G. E. Church, M.B., to Research Laboratory and M.O.S. of I, 1/2.

STORES BRANCH.—Squadron Leader G. A. Hilliar, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 10/1.

Flight Lieutenants H. S. F. T. Jerrard and C. J. Polden, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 20/1. W. A. O. Honey, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 2/1. J. V. Mason, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 14/1. H. V. Robbins, to R.A.F. Training Base, Leuchars, 8/2. A. J. Briddon, to H.Q., Cranwell, 7/2. F. Whitton, to H.Q., Coastal Area, 3/2. J. C. Shakeshaft, to H.Q., Coastal Area, 31/1.

Flying Officers F. A. Skoulding, to Air Ministry, Directorate of Equipment, 31/1. F. W. Todd, to No. 56 Sqn., Biggin Hill, 4/2. A. S. Berry and R. Lamb, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 10/1. E. F. Elliott, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 2/1. D. A. W. Sugden, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 2/1.

An Award.

A presentation was made at Hawkinge Aerodrome on Feb. 8 by Air Vice-Marshal H. R. M. Brooke-Popham, C.B., C.M.G., D.S.O., A.F.C., in the presence of the officers and men of No. 25 (Fighter) Squadron, R.A.F., to Mr. Albert J. Daniels,

of Terlingham Farm, Hawkinge, of a gold watch and £20 in recognition of his bravery on Dec. 9 when he attempted to save the life of Flg. Off. J. H. C. Purvis. Mr. Daniels was severely burned while pulling Mr. Purvis from the wrecked aeroplane.

Air Vice-Marshal Brooke-Popham said that Mr. Daniels had performed a very gallant deed and that they were all pleased that the Air Ministry had shown their recognition.

The R.A.F. Cairo—Cape Town Flight.

In connection with the forthcoming R.A.F. Flight from Cairo to Cape Town and back, which is due to leave Cairo on March 25, it is now reported that four S.A.A.F. machines will leave Cape Town on the same date, and both flights will meet at Kisumu on April 5. The four South African Air Force machines will be flown by Major Meintjes, Capt. Tasker, Lieut. Schoeman and one other officer.

After both flights have met at Kisumu they will fly together to Nairobi to co-operate with the King's African Rifles in certain military manoeuvres.

From Nairobi the combined flights will proceed to Cape Town, and the R.A.F. Flight will again co-operate with the S.A.A.F. machines at the Active Citizens Force camp at Grahamstown from April 19 to 28.

After these manoeuvres the R.A.F. Flight will fly to Durban and remain there some days before returning to Pretoria, where they will remain for a week.

A Warning to Pilots.

The Air Ministry Notice to Airmen No. 9 of 1927 states:—

1. Pilots of aircraft flying in the vicinity of the railway lines between Basingstoke, Hants., and Woking, Surrey, are particularly warned that this locality is being used during foggy weather by aircraft flying for experimental purposes.

2. In order that these experiments may not be interrupted pilots of other aircraft should avoid flying in this locality in foggy weather.

Apparently the explanation is that a Loth leader-cable has been laid along the railway—an eminently sensible idea. The experiments are intended to test the reliability of the Loth cable and of the apparatus which an aeroplane has to carry in order to pick up the emanations from the cable, and the usefulness of both in leading a blind pilot to an aerodrome.

R.A.F. SPORTS AND PASTIMES.

Rugby Football.

The Royal Air Force Match against the Royal Navy will be played on Saturday next, Feb. 19, at 3 p.m. at Twickenham.

The R.A.F. team will be:—Full-back, Flg. Off. Hale-Munro, threequarters: Flt. Lt. Bryson, Flg. Off. Hodder, Flg. Off. Harvey and AC. Massey; Halves: Plt. Off. Norwood and Sq. Ldr. Russell. Forwards (selected from): Flt. Lts. Chick, Maxwell, Turner, Flg. Offs. Beamish, O'Malley, Reynolds, Heskeith, Franks, Chichester, and Cpl. Christie.

The Rugby Football Cup

The results of the third round of the R.A.F. Rugby Cup Competition were:—Sealand beat Leuchars, 15-0; Felixstowe beat Halton, 9-0; Worthy Down beat Netheravon, 28-6; Kenley scratched to Manston.

The semi-final between Sealand and Felixstowe will be played on Feb. 23 probably at Uxbridge. The date of the semi-final between Worthy Down and Manston has not yet been decided.

The final will be played at Uxbridge on Mar. 19.

Hockey.

R.A.F. v. Army:—The Army beat the R.A.F. at Halton on Feb. 14 by 7 goals to 1.

At half time the Army were leading by three goals to nil and the only Air Force goal was scored by Flt. Lt. N. H. Hampton. The R.A.F. team were:—

AC. Reid (Farnborough), goal; Sq. Ldr. F. J. Murphy (Halton) and Flg. Off. C. F. Roupell (Upavon), backs; Flg. Off. E. J. Culverwell (Digby), Flg. Off. L. W. Dickens (Wittering), and Cpl. Hough (Uxbridge), half-backs; Flg. Off. C. P. Vines (Farnborough), L.A.C. W. Maher (Henlow), Flt. Lt. E. B. C. Betts (Stammore), Plt. Off. R. E. Hall (Duxford), and Flt. Lt. H. N. Hampton (Stammore), forwards.

The R.A.F. Boxing Association

The semi-finals of the R.A.F. Team Boxing Championships have now been concluded. In the Open Division, Manston beat Netheravon by a margin of one point; Halton scratched to the Home Aircraft Depot, Henlow. The final, between Manston (holders) and the Home Aircraft Depot, will take place at Henlow on Mar. 28.

In the Junior Division, Duxford won every contest in a match with No. 2 Flying Training School, Digby; Kenley beat the School of Balloon Training, Larkhill, by one point. The final will be decided at Kenley.

The R.A.F. Individual Boxing Championships are to take place at Halton Camp on Mar. 2 and 3. The cups which will be given as prizes have, on this occasion, been presented by Air Vice-Marshals and Air Commodores of the R.A.F.

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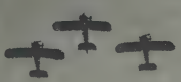
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The Aeroplane, Jan. 5th, 1927.

"Flight" photograph

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FLYING FOR AIR SURVEY.

In a paper entitled *Flying for Air Survey Photography*, read by Capt. F. Tymms, M.C., before the Institution of Aeronautical Engineers on Feb. 10, a very clear account was given of the problems which have to be solved by the pilot who sets out to cover a given area by the process of vertical photography.

If the pilot of an aeroplane can fly an accurate straight course at an accurately uniform height, holding his machine dead level both fore and aft, and if during this flight the plates in a camera fixed vertically in his machine be exposed at the correct intervals, a series of photographs will be obtained each of which is an accurate plan to a uniform scale of part of the country below the line of flight, and these photographs can be joined up to give an accurate strip map covering a certain width on each side of the course flown.

If now the pilot can fly a second straight course parallel to the first, but displaced to one side of it by half the width covered by the first set of photographs, a second strip map will be produced, and this can be joined up to the first.

This ideal process of air photography cannot be achieved. The pilot cannot fly an absolutely straight course, and each strip becomes more or less curved or waved. He cannot maintain absolutely uniform height, and therefore individual photographs are of varying scale. He cannot keep the machine absolutely level, either laterally or fore and aft, and individual photographs are therefore distorted as the result of tilt, and displaced either laterally or fore and aft along the line of flight.

The object of the survey pilot is to reduce to a minimum these inaccuracies in order that the resulting photographs shall cover completely the area to be surveyed, and shall give as nearly an accurate plan as is possible with the minimum expenditure of time spent in flying.

The paper deals in detail with the methods which have been adopted in practice to secure these ends.

It is clearly demonstrated that, given a really good view forward and downward, accurate navigation—to the extent of course keeping and maintaining the necessary distance between successive strips—can be attained by very simple

observations of ground landmarks, and that a simple type or open sight is the only instrument required.

To cope with the very bad forward view given in the ordinary tractor aeroplane various ingenious optical sights have been designed. All these suffer from the defect that a pilot with one eye glued to a sight is much more likely to fly erratically than one who is keeping a look-out ahead.

The problem of keeping the camera axis truly vertical depends at present on the steadiness of the pilot. "Good" flying for air survey gives a maximum tilt of $3\frac{1}{2}^{\circ}$, and 80 per cent. of photographs with less than 2° tilt.

Reducing tilt may be tackled in various ways. Of those proposed, automatic stabilisation of the machine with the camera fixed, or of the camera alone may give a complete solution. Both must depend on the gyrostator, and at present no gyrostator will do what is necessary. But it is obviously going to be easier to stabilise the camera than the whole machine.

At present two practical methods are available. For one the camera is fixed, and the pilot, warned of the imminence of an exposure, levels up the machine. In the other the observer seeks to adjust the camera to correct level independently of the attitude of the machine.

Neither gives a perfect solution, because of the lag of the human brain, and the inaccuracy of bubble levels when subject to acceleration. It seemed possible that a small gyro to give the vertical may be an improvement on existing instruments for this purpose.

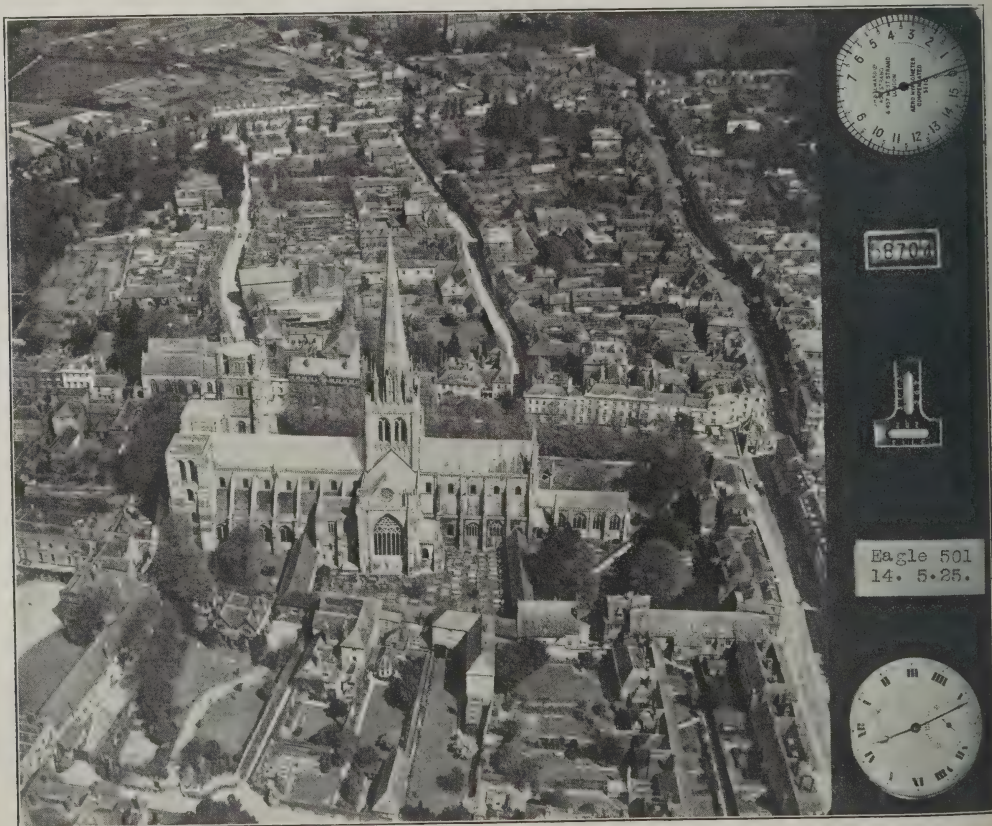
The problem of maintaining height accurately is one depending on instruments, and here there is room for improvement. Tests are being made with various types of statorscope, and it is hoped that improvement in this respect will result.

THE DISCUSSION.

The discussion on this paper was almost as complete as the paper itself, and only the main points are here recorded.

Capt. McCaw, of the Air Survey Committee, expressed the opinion that instrumental navigation must be developed for use in districts where the surface was so featureless that ground landmarks could not be used. The disadvantages of present optical sights could be reduced.

MR. BRAMSON among other remarks suggested that instead of attempting to stabilise the camera it should be allowed to swing, and some



An oblique photograph of Chichester taken with the Williamson Eagle Camera. Note the images of altimeter, exposure counter, levels and watch on the margin. The tablet between the levels and the watch may have any desired data written on it.

AIRCRAFT

OF ALL TYPES.



THE "HORSLEY."

[Flight Photo.]

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interlocking gear fitted so that exposure should only occur when it was truly vertical.

MR. WILLIAMSON, the designer of the Eagle Camera, said that he was actually experimenting with such an arrangement. He had only tried it on the bench, which was rather different from conditions in the air, but he had great hopes that some such arrangement would solve the tilt difficulty.

FLY. L.T. REID said that since the discussion at the Institution House Dinner he had made up a model of an instrument designed to reduce tilt. It comprised a sensitive cross-level indicator for the pilot, combined with an interruptor gear for the camera which held up exposure till the camera was level. He had the model working and would be glad to show it to those interested.

THE U.S. TRANS-CONTINENTAL AIR MAIL.

On Jan. 15 Postmaster-General H. S. New opened the bids requested by the U.S. Post Office for the commercial operation of the Transcontinental Air Mail Route from New York to San Francisco, which has been operated by the Post Office Department since 1919. The route is to be in two sections; from New York to Chicago, 771 miles and from Chicago to San Francisco 1,904 miles.

For the New York—Chicago route there were four bidders: Columbia Air Lines Inc., of New York City; Colonial Air Transport Inc., which already operates the Boston—New York air mail route, and National Air Transport Inc. which operates the Chicago—Dallas—Fort Worth air mail route, the latter company putting in two bids.

For the Chicago—San Francisco route there were also four bidders: The Boeing Airplane Co. and Edward Hubbard, of Seattle, Wash.; Columbia Air Lines Inc., Western Air Express Inc., of Los Angeles, Cal., who already operates the Los Angeles—Salt Lake City air mail route, and the Stout Air Service Inc., which operates the Detroit—Chicago and the Detroit—Cleveland air mail routes.

The following are the amounts bid by the various companies for the carriage of mail over the two routes with the approximate pound-mile rates in parenthesis:—

New York—Chicago (771 miles):—
Columbia Air Lines, \$1.73 per lb. (.224 c. per lb.-mile);
Colonial Air Transport, \$1.88 per lb. (.244 c. per lb.-mile);
National Air Transport, \$1.98 per lb. (.257 c. per lb.-mile)
or alternatively a bid based on the amount of mail carried ranging from \$2.57 per lb. for less than 700 lbs. per day to \$1.25 per lb. for 6,000 lbs. and over (.162 c. per lb.-mile).

Chicago—San Francisco (1,904 miles):—
Boeing Airplane Co. and Edward Hubbard, \$1.50 per lb. for the first 1,000 miles and 15 c. per 100 miles thereafter (.15 c. per lb.-mile); Columbia Air Lines, \$1.47 per lb. (.234 c. per lb.-mile); Western Air Express, \$2.24 per lb. for the first 1,000 miles and 22.4 c. per 100 miles thereafter (.224 c. per lb.-mile); Stout Air Service, \$2.64 per lb. for the first 1,000 miles and 26.4 c. per 100 miles thereafter (.264 c. per lb.-mile).

According to *Aviation* of Jan. 24, these tenders have created some astonishment owing to the low rate asked for. It appears that on the experimental privately operated mail routes which have now been at work for some months, a flat rate of \$3 per lb. has been paid to the contractors irrespective of route mileage which varies between 250 and 1,000 miles. This flat rate is equivalent to 1.2 cents per lb.-mile on the shortest, and .3 cents per lb.-mile on the longest, stage, and all the new bids fall below the lower of these two figures.

As a number of the firms responsible for the new bids have already some experience of operating under the flat-rate condition, it seems fair to assume that the \$3 rate was one giving a very satisfactory return to the operator.

In his weekly News Letter Mr. Lester D. Gardner, Publisher of *Aviation*, attempts to draw deductions from these mail tenders concerning the possible passenger rates on American air lines. He takes the round figure of .25 cent per lb.-mile as representing a rate which would satisfy the companies and deduces rates per passenger mile for a passenger weighing 150 lbs.

Also he indicates that the London—Paris fare of approximately \$30 including luggage is approximately .074 cent per lb.-mile. Taking into account the fact that Imperial Airways are subsidised he concludes that this figure is not out of line with the lowest air mail bid of .15 cents.

It is a little dangerous to assess passenger fares on the basis of air mail tenders such as these. [For passengers also have round figures.—ED.] It may be pointed out that according to the reiterated statements of various authorities Imperial Airways' passenger rates show a distinct profit on Summer traffic-density, and that their loss (which the subsidy covers in part) is purely due to the enormous drop in traffic in the Winter months.

Under all conditions air passenger traffic in Northern Europe and Northern America is pretty certain to suffer seasonal fluctuation of a noticeable character, quite apart from any question as to whether conditions will permit regular operation of the aircraft themselves. It is not pos-

sible from here to estimate the probable uniformity of the Air mail loads which the American contractor may expect throughout the year, but it may be said with fair confidence that they will find their cost per lb.-mile of passenger to be appreciably higher than the corresponding figure for mails simply because passenger traffic is liable to larger seasonal variations.

Quite apart from this a pound of passenger means more load than a pound of mails. The weight of passenger accommodation in present-day machines is a serious item.

To carry a passenger in the state of comfort already achieved on air lines means carrying from 50 to 80 lbs. per passenger in the form of fittings which would not be necessary for the comfort of mails. A 150-lb. passenger means carrying 200 to 230 lbs. of total load, and on a mail rate basis he should be counted at some such figure.

Taking these considerations into account, and recollecting that the Imperial Airways' rate of .074 cents per lb.-mile of passenger would pay without a subsidy if traffic were uniform all the year round, these American tenders of from two or three times as much for mails seem likely to be very satisfactory indeed to the successful contractors.

It would even seem possible that they will be able to carry passengers at the same lb.-mile rates as those quoted for mails. But if this be the case the mail contracts will be helping to pay for the passengers.

ROUND THE ATLANTIC OCEAN.

On Feb. 13 Colonel the Marchese de Pinedo, accompanied by Capt. del Prete as second pilot and Signor Zaccchetti as mechanic, left Elmas, Sardinia, in an attempt to fly round the Atlantic Ocean.

The itinerary of his flight is as follows:—Gibraltar, Rabat, Canary Islands, Cape Verde Islands, Fernando Noronha, Bahia, Rio de Janeiro, Buenos Aires, Asuncion, Manaos, Lake Parima, Georgetown, Giradot, Kingston (Jamaica), Havana, New Orleans, St. Louis, Chicago, New York, Halifax (Newfoundland), the Azores, Lisbon and back to Italy.

From Buenos Aires he may take a detour to Valdivia and Valparaiso and back to Buenos Aires. And from New Orleans the route may be varied by going via Galveston, San Diego, San Francisco, Seattle and thence to Chicago.

Without these two variations, the distance to be covered in 24 stages, will be 22,600 miles and with the additional 10 stages the total distance will be 30,100 miles.

He is using a Savoia 55 twin-hulled monoplane fitted with two 500 h.p. Isotta-Fraschini engines. The machine carries a useful load of 7,500 lbs., has a range of 1,900 miles and a cruising speed of 100 m.p.h.

On Feb. 13 the Savoia 55, which left Elmas, Sardinia, at 07.25 hours, arrived at Kenitra, Morocco, at 15.15 hours, thus covering the first 1,000 mile stage of the flight, despite considerable weather difficulties, at an average speed of 125 m.p.h.

On Feb. 14 it left Kenitra at 05.30 hours and arrived at Villa Cisneros (Rio de Oro), Spanish Sahara, on the second stage, covering approximately 1,000 miles at an average speed of 105 m.p.h.

AEROPLANE RELIEF WORK IN THE BALTIC.

The February issue of *The World's Health* contains the following paragraph:—

The utility of aeroplanes for the transport of the sick and wounded, and of medical personnel and supplies, has long been recognised, and at the present time they are in constant service in several countries for these purposes. Attention has lately been drawn to the fact that they are hardly less useful for relief work on land and sea since they can make a rapid survey of the spot and fetch immediate help.

Last winter the "Aeronaut" Society of Reval had an opportunity of testing the services of an aeroplane in such circumstances. A large boat, the *Caroline*, found itself not only wedged in by the ice-blocks which, at this time of year, cover the Baltic Sea, but also threatened with destruction. With the help of an aeroplane, however, provisions were sent to the crew, and ice-breakers were hurried to the spot, guided by the exact directions given by the aeroplane.

This Society has done very useful work in carrying relief to the islanders of the Baltic, at those seasons of the year when the ice neither bears nor melts—work similar to that done by the Swedish Red Cross in the north of Sweden. In the spring, the roads in Estonia are almost impassable because of the melting snow. The "Aeronaut" Society has also been the means of supplying relief in various forms to those people on land who, at this time of the year, are just as isolated as those on the islands.

THE R.Ae.C. MONTHLY HOUSE DINNER.

The Monthly House Dinner of the Royal Aero Club will be held at the Royal Aero Club on Wednesday, Feb. 23, at 7.15 p.m.

The Lord Thomson will take the Chair and Mr. C. L. G. Colebrook, the Aeronautical Correspondent of *The Times*, will open a discussion on "The Public, Aviation, and the Press."

The number of diners is limited to 60, and members wishing to attend are requested to notify the Club as soon as possible.

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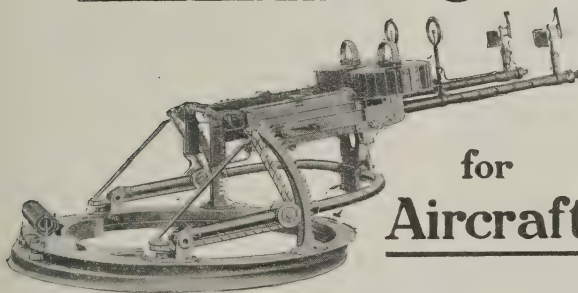
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THE PAN-AMERICAN FLIGHT.



THE PERSONNEL OF THE PAN-AMERICAN FLIGHT.—Reading from left to right :—Capt. A. B. McDaniel, Lieut C. McK. Robinson, Capt. C. F. Woolsey, Lieut J. W. Benton, Major H. A. Dargue, commanding officer, Lieut E. C. Whitehead, Lieut B. S. Thompson, Lieut A. D. Weddington, Capt. I. C. Eaker and Lieut M. S. Fairchild, all of the U.S. Army Air Corps.

On Dec. 21 five Loening amphibians of the U.S. Air Corps left Duncan Field, San Antonio, Texas, on a flight round South America.

The five machines were manned as follows :—*New York* (flagship) : Major H. A. Dargue and Lieut. C. E. Whitehead; *San Antonio* : Capt. A. B. McDaniel and Lieut. C. McK. Robinson; *San Francisco* : Capt. I. C. Eaker and Lieut. M. A. Fairchild; *Detroit* : Capt. C. F. Woolsey and Lieut. J. W. Benton; and *St. Louis* : Lieut. B. S. Thompson and Lieut. L. D. Weddington.

For purposes of organisation the entire flight has been divided into six divisions or stages as follows : (i) San Antonio, Texas (U.S.A.)—France Field (Panama Canal Zone); (ii) France Field—Valdivia (Chile); (iii) Valdivia—Rio de Janeiro (Brazil); (iv) Rio de Janeiro—Port of Spain (Trinidad); (v) Port of Spain—Pointe à Pitre (Guadaloupe); (vi) Pointe à Pitre—Jacksonville, Fla. (U.S.A.). From Jacksonville a tour of the United States is contemplated.

The flight will pass over the following countries :—Mexico, Guatemala, Salvador, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Peru, Bolivia, Chile, Argentina, Paraguay, Uruguay, Brazil, French Guiana, British Guiana, Dutch Guiana, Trinidad, Venezuela, Isle of Grenada, Isle of St. Vincent, Isle of Martinique, Virgin Islands, Porto Rico, Dominican Republic, Haiti and Cuba.

The flight took off from Duncan Field at 11.30 hours and reached Brownsville the same day.

On Dec. 23 they arrived at Huasteca Field, Tampico, Mexico.

On Dec. 23 the *San Francisco*, piloted by Capt. Eaker, arrived at Vera Cruz. This was the only machine to arrive from Tampico. The *St. Louis* was forced to land with engine trouble, and the other three were ordered to return to Tampico by the commanding officer. The *Detroit* made a forced landing in the river, but later returned to the field. The *San Francisco*, being above the clouds, failed to see the recall signal and proceeded to Vera Cruz.

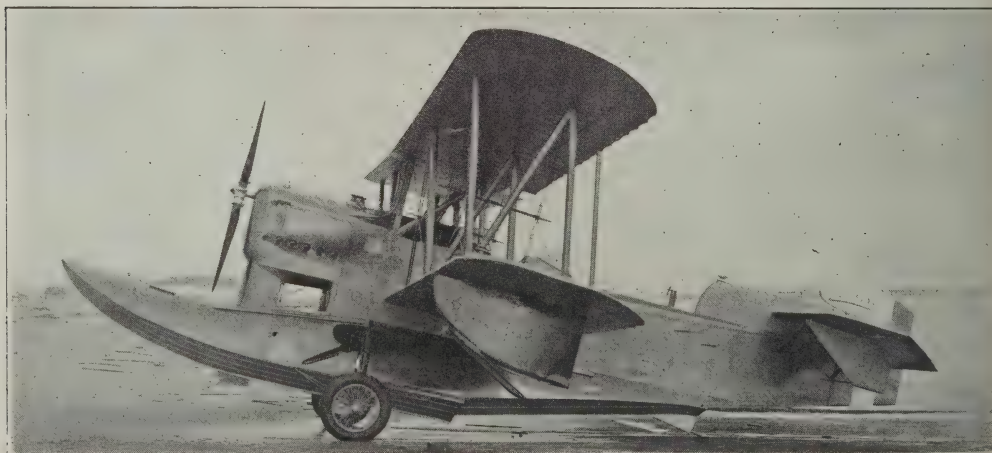
A new engine was despatched from San Antonio for the *St. Louis*, and it was decided that the remainder of the expedition would stay at Tampico until the machine was ready to continue.

On Dec. 30 *New York*, *St. Louis*, *San Antonio* and *Detroit* arrived at Vera Cruz from Tampico.

On Dec. 31 the five machines left Vera Cruz and landed at Minatitlan, near Puerto Mexico, to re-fuel. From here they crossed the Isthmus of Tehuantepec from the Atlantic to the Pacific Ocean, alighting in Salina Cruz harbour.

On Jan. 2 they flew from Salina Cruz to Guatemala City.

On Jan. 4 they left for San Salvador, but a few minutes after taking off the *New York* developed engine trouble and



THE EQUIPMENT OF THE PAN-AMERICAN FLIGHT.—The Loening Amphibian, five of which are being used on the flight round South America. They are fitted with 400 h.p. inverted Liberty engines and three-bladed Standard Steel airscrews. To assist in identification in the event of forced landings in wild country, the wings are painted bright yellow and the fuselages black.



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Practically all of the exploring and pioneering expeditions of the United States Government the past two years have been successfully accomplished with Loening Amphibians.

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BATTEN—Accomplished his Aerial Survey of the Rainy Lakes and the Canadian border with complete success—a feat the Army could not previously accomplish because it took an amphibian and a *good one* to do it.

McDONALD—Beat the records, for speed with load, of the World's best seaplanes with an Army Loening Amphibian, not only as a seaplane but carrying all its landing gear along in addition.

SCHILDAUER—Returned from Cuba, his hydrographic survey for the Navy successfully completed without a hitch, using the very same planes that Byrd flew in the Arctic.

POPE—With no publicity or announcements, successfully accomplished his work for the Navy in the Gulf of Venezuela under the worst tropical conditions.

WYATT—Went up to Alaska with his fleet of Loening Amphibians —flew about fifty thousand miles without a single forced landing of any kind, and flew back down the Pacific Coast to San Diego, completing one of the most brilliant exploits in the annals of American Aviation, and with more than double the amount of difficult Survey work accomplished than had been thought possible.

MOST DIFFICULT of all aviation problems of National Defence giving serious concern to the authorities in Washington, is the development in America of Naval Aircraft that, when launched from the catapults, will land on the aircraft carrier—or when launched from the carrier will land and take off the water. The Loening Amphibian has the proud distinction of being to date the only aircraft of any type that has successfully and conclusively solved this problem.

THE AIRPLANE THAT DOES THE HARD WORK FOR AMERICA
THE LOENING AMPHIBIAN

was forced to land, smashing its landing gear beyond immediate repair. It was later towed to a lake several miles away and was taken off as a seaplane, thus demonstrating the dual capacities of the Loening amphibian.

It was found that the *New York* could proceed as a seaplane for the remainder of the first stage to France Field, but in order to save time it was ordered to go there by the most direct route so that repairs could be put in hand with as little delay as possible.

On Jan. 11 the five machines left Guatemala City for San Salvador.

On Jan. 13 they reached Amapala, Honduras, having covered 200 miles in less than two hours.

On Jan. 15 the five machines reached Managua, Nicaragua. At Managua, the *New York*, temporarily under command of Capt. C. F. Woolsey (Major Dargue remaining behind to make official calls as commanding officer of the Expedition), and the *St. Louis* left for France Field, Panama Canal Zone. The other three machines continued to Punta Arenas, Costa Rica.

On Jan. 18 they left Punta Arenas and flew to France Field after a stop at David, Panama.

As they approached France Field they were met by a squadron of U.S. aircraft and escorted to the landing field.

The distance from San Antonio to France Field is about 3,000 miles. This represents the end of the first stage of the flight. All machines were due for overhaul, and a spare machine was despatched from San Antonio to France Field to take the place of the *New York* should repairs to this machine take longer than is expected.

In reporting the progress of this "Showing the Flag" flight it is proposed to deal with it by complete stages instead of by weekly reports.

PROGRESS WITH THE SLOT ANDAILERON CONTROL.

Readers of THE AEROPLANE with reasonably good memories may remember that quite a long time ago the use of a Handley Page Slot on the leading edge of the wing working in conjunction with an aileron of the usual type had been found very greatly to improve the control of an aeroplane in the stalled condition.

On Apr. 15, 1925, an Avro fitted with this type of control by the Royal Aircraft Establishment at Farnborough, was publicly exhibited at Croydon Aerodrome, and the event was fully reported in this paper. On Dec. 3 of the same year Prof. Melville Jones, who is a prominent member of the panel of the Aeronautical Research Committee dealing with stability and control, read a paper before the Royal Aeronautical Society on the Control of Stalled Aeroplanes in which he explained about as simply as is possible how and why this particular arrangement gave improved control on a stalled aeroplane.

This paper, which was reported in THE AEROPLANE of Dec. 23, was followed in February, 1926, by the issue of R. and M. No. 1000—The Lateral Control of Stalled Aeroplanes—which gave in an official form the information upon which Prof. Jones' paper was based. Since then very little has been heard on the subject of the slot and aileron control.

If, as seems to be fairly well established, this form of control is effective and can be relied upon to mitigate the danger usually attendant on the stalling of an aeroplane, it may reasonably be asked why obvious signs of its extensive application to new machines—both civil and military—have not appeared in the interval.

This query is in some part answered by the appearance of R. and M. No. 1051 giving "The Result of Full Scale Experience with a Bristol Fighter" fitted with this type of control. Originally this machine was fitted with Bristol-Prise ailerons inter-connected with leading edge slots on both top and bottom wings.

After its first flight so fitted it was reported by Sq. Ldr. Haig to be dangerously over-balanced at speeds of 60 m.p.h. and over. One and a half inches was therefore cut off the leading edges of the ailerons, and a packing block of the same width fitted to the rear spar, thus reducing the amount of balance.

In this state it was reported that the desired effect of control at low speeds had been attained. The ailerons, however, still appeared to be over-balanced—which was attributed in the report to the fact that control forces were small in relation to the friction in the control system. The machine was found very difficult to fly, particularly in bumpy weather, and was obviously much disliked by pilots.

The lower wings were then removed and replaced by a standard pair of Bristol Fighter wings. These have unbalanced ailerons, and, of course, no slots. This increased the air forces on the control, and, owing to the omission of one set of slot gears, reduced the friction in the system, making the machine more normal in "feel."

According to the pilots' opinion the machine in this second state had been "improved out of all recognition. The control in the stalled state, however, was now hardly adequate." To overcome this deficiency the gearing between aileron and slot was altered so that the slot opening for a given aileron angle was increased 50 per cent.

In this third state it is said that the feel of the control was still quite pleasant and the control in the stalled condition adequate. At high speeds the machine is very sensitive to the rigging of the ailerons in relation to the slot-opening, and unless this is adjusted accurately so that one slot opens immediately the other closes trouble is encountered.

It is further reported that with the excellent lateral control given by the arrangement at the stall the deficiencies of the standard rudder are very apparent, and it is desirable to add to the slot and aileron control the extra large fin and rudder for this type of aeroplane which had already been recommended.

The report states that the increased control at low speeds has "probably considerably increased the aeroplane's fighting efficiency. In two mock fights... at the R.A.E.... the Bristol Fighter with slot and aileron control outmanoeuvred the standard aeroplane on each occasion... It is suggested that the large fin and rudder be fitted and the aeroplane sent to a Service Squadron for further report."

That the increased control at low speeds given by the slot and aileron gear should lead to an increase in the manoeuvring power of any given aeroplane would be expected. That this type of control does give increased security in case of a stall seems once more to have been confirmed. But the report does suggest definitely that in the attempt to secure control in the stalled state combined with satisfactory behaviour in normal flight difficulties of a somewhat serious nature may be met.

These difficulties can pretty certainly be overcome, but the problem of producing aeroplanes safe both stalled and otherwise is a little more complex than might be supposed.

In this connection it has been stated in *The Morning Post* that the official report of the pilots at the Aeroplane and Armament Experimental Establishment at Martlesham Heath on a de Havilland Moth fitted with a slot and aileron control states that this control "practically eliminates risk of serious accident by stalling near the ground." This report however has not yet been published and it is not known whether the normal flying qualities of the machine have in this case suffered any ill effects, either aerodynamically or owing to increased weight.

As the primary object of an aeroplane is that it should fly decently unstalled it may be assumed that the official view on this subject is that the adoption of slot and aileron control as standard for Service aircraft will not be justified until enough is known concerning its behaviour to make certain that it will not lead to serious trouble in normal flight.

It is, however, possible to believe that had the development of this type of control been entrusted to private enterprise—say, by Handley Page Ltd.—considerably more progress might have been made in this respect in the same time.

THE ROYAL AERONAUTICAL SOCIETY.

On Thursday next, Feb. 17, Major R. H. Mayo, O.B.E., F.R.A.S., will lecture at the Royal Society of Arts, 25, John Street, Adelphi, W.C.2, at 6.30 p.m., on "Design of Commercial Aircraft from the Operational Point of View."

Major Mayo's lecture will be divided into two main divisions:—(1) Regular air transport on scheduled routes. (2) General air service. Under the first heading he will review the development of design particularly in the direction of safety. An analysis will be given of the factors affecting safety and reliability, controllability, detailed design and structural strength and fire prevention. The design features as affecting operating costs will be dealt with and also the comfort of the passenger.

In the second part of his lecture Major Mayo will deal from the design point of view with Air survey and exploration; taxi-flying; transport of plant and machinery; and club and private flying.

In his general review at the end of his lecture, Major Mayo will deal with the Daniel Guggenheim Safe Aircraft Competition, its objects and scope.

THE INSTITUTION OF AERONAUTICAL ENGINEERS.

The second House Dinner of the Institution of the Aeronautical Engineers will be held at the Engineers' Club, Coventry Street, on Friday, Mar. 4, at 7.30 p.m. Tickets for members or their guests will be 5s. each, and it is hoped that all those proposing to attend will make an early application for tickets.

THE JOURNAL OF THE I.A.E.

The February number of the Journal of the Institution of Aeronautical Engineers has just been published. This number fully maintains the high standard reached in the January issue—the first of the series. It contains, over and above the official information as to the Institution's objects and programme, reports of two very interesting papers.

The first by Mr. Bramson on the provocative subject of "Unsolved Aeronautical Problems," and the other by Mr. G. H. Dowty on "Aircraft Alighting and Arresting mechanism." This last paper gives much useful data on the design of shock-absorbing gear, both oleo and rubber, and a description of a very ingenious arresting gear for deck landing or similar purposes.

Both papers gave rise to interesting discussions, which are fully reported.

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SAMPLES ON APPLICATION.

THE FLYING CLUBS. The London Aeroplane Club.

Report for week ending Feb. 13.

With four blank days owing to fog, the total time for the week was 20 hrs. 5 mins.

Pilot Instructors.—Messrs. F. G. M. Sparks, R. W. Reeve, A. S. White.
Dual Instruction.—H. O. Guggenheim, Mrs. Christie, Miss O'Brien, A. J. Mulder, H. M. Samuelson, A. J. Richardson, C. R. Campkin, E. R. Wilson, M. P. Sussman, L. W. Gibbins, D. S. Hewitt, H. R. Presland, R. P. Cooper, Lady Bailey, E. A. Lingard, L. Wickett, J. G. Crammond, F. C. Elford, G. N. Howe, Mrs. Cook, Dr. Cook, I. J. Hofer.

Solo Flying.—Capt. H. Spooner, C. E. Murrell, Miss O'Brien, Lady Bailey.

The Newcastle-upon-Tyne Aero Club.

Report for week ending Feb. 13.

Fog on each day of the week has seriously interfered with flying. Sunday was particularly bad, but flying took place on four days of the week.

Total time.—13 hrs. 50 mins.—12 hrs. 20 mins. on LY and 1 hr. 30 mins. on LX. The latter was off service until Friday for attention to engine.

The following members flew under instruction with Mr. Parkinson:—Mr. M. G. Thirlwell, Mr. Miesegaes. Mr. J. D. Irving had advanced dual.

Solo.—Miss C. R. Leathart, Mr. J. Stawart, Mr. H. D. Mathews. and Mr. A. Bell.

"A" Pilots.—Mr. H. Ellis, Mr. J. D. Irving with Miss Studholme, Miss Duffy, Miss Stawart and Mrs. Parkinson. Mr. R. N. Thompson with Mr. Watson and Mr. Jackson. Mr. C. Thompson with Mrs. Heslop and Mr. J. M. Campbell. Dr. H. L. B. Dixon with the Misses Stawart and Mr. Percy.

The following had joy-rides with Mr. Parkinson: Mrs. Parkinson, the Misses Wardale, Mr. Hayton, Mr. Sandford and Mr. White.

Lord Ossulston flew his own machine with the Misses Rowe as passengers.

Mr. Parkinson will attend a Course at the Central Flying School for about two weeks.

Lord Ossulston called with his new Moth at Cramlington on Tuesday on his way North. As is usually the case when he calls at the aerodrome, he stayed in Newcastle overnight, proceeding to Chillingham next morning. He reappeared out of the fog on Sunday morning and again stayed overnight at Newcastle.

A very happy evening of dance and song was spent by members at the Club-house on Sunday evening. Mrs. J. D. Irving and Lord Ossulston very kindly provided the piano music (dual and solo) assisted by a professional banjoiist and (?) by Dr. Dixon and Mr. A. Bell with Jap fiddles. Certain members had dual instruction with Mr. and Mrs. Irving in the Charleston.

Between 45 and 55 members and friends stay to tea on Sundays and appear to enjoy themselves.

As stunting in machines is practically eliminated, certain members with a thirst for sensationalism have made efforts to emulate a famous "stunt" pilot in another direction. They have been searching the district for a field which will have a gateway large enough for them to push the Avro through when they "forced-land" for petrol. Their difficulties appear to be mainly that they are unable to find the field with (1) a sufficiently large gate, (2) a petrol filling station sufficiently near, and (3) guarantee that the necessary photographers will be on the spot at the time.

The Lancashire Aero Club.

Report for week ending Feb. 12.

Total flying time 26 hrs. 25 mins., made up as follows:—Dual with Messrs. Brown, Cantrill and Scholes:—Mr. Caldecott 2 hrs. 5 mins., Miss Brown 1 hr. 55 mins., Miss Emery 1 hr. 10 mins., Messrs. Meades 1 hr., Nelson 55 mins., Dickinson 35 mins., Forshaw 35 mins., Musgrave 30 mins., Shiers 30 mins., Gatterall 25 mins., Abdalla 25 mins., Hartley 20 mins., Goodyear 20 mins., Fallon 20 mins., Stonex 20 mins., Blagden 20 mins., Hughes 15 mins., Davidson 15 mins., Fray 15 mins., Ruddy 15 mins., Heys 10 mins., Crosthwaite 10 mins.

Solo:—Messrs. Twemlow 1 hr. 40 mins., Michelson 1 hr. 35 mins.,

Crosthwaite 1 hr. 15 mins., Goodfellow 50 mins., Costa 50 mins., Lacayo 45 mins., Wade 35 mins., Gatterall 35 mins.

Joy-rides:—With Mr. Scholes—Mrs. Fray 15 mins., Messrs. F. Scholes and Hill 10 mins. each. With Mr. Cantrill—Messrs. Hardy 25 mins., Grimshaw 15 mins. With Mr. Lacayo—Mr. Benson 25 mins. With Mr. Goodfellow—Mr. Caldecott 20 mins. With Mr. Costa—Mr. Contilio 20 mins. With Mr. Leeming—Miss Leech 15 mins.

Tests:—2 hrs. 15 mins.

On Sunday, the 6th, although only three machines were serviceable, we managed to get in 13 hrs. 50 mins.' flying. Failing light and a thickish ground haze prevented us from beating the summer record, which stands at 14 hrs. 35 mins.

The rest of the week, though fine, was spoiled by fog, which interfered seriously with flying. We were handicapped also by the absence of our Scottish member, which made it impossible to carry out the standard visibility test. (Perhaps Hampshire, having failed to borrow our telescope and half-crown, would like to make the best of a bad job and lend us their Scottish member instead?)

The improvement of the aerodrome by the demolition of the big wood in the centre is in full swing and our chairman has taken to lending a hand by removing the top from any tree which impedes upon his line of approach. One has heard of spraying fruit trees by air, but one has doubts as to whether pruning them by air is a practical proposition.

Members are notified that Mr. Alan Goodfellow (Tel.: Gatley 99) has been appointed an additional observer and examiner for the R.Ae.C. Certificate.

The Yorkshire Aeroplane Club.

Report for week ending Feb. 10.

Total flying time 7 hrs. 30 mins., made up as follows:—Solo, 3 hrs. 35 mins. Dual instruction, 3 hrs. 25 mins. Joy-rides, 25 mins. Tests, 5 mins.

Messrs. Mann, Dawson, Norway and Wood flew solo and Messrs. Wayman, Wilson and Batcock dual.

On Saturday, Feb. 5, Mr. Wayman (our new chairman) came over and flew for 5 mins. dual.

On Feb. 6, Mr. Mann performed his first loop (for a wager) and last Tuesday (8th) Lord Ossulston, of the Newcastle Club, landed in his Moth, having flown from Spittlegate aerodrome. After a short stop at Sherburn he continued his journey to Cramlington, taking with him Mr. Addyman, whom he proposed to drop at Catterick Bridge.

One greatly admires Mr. Leeming's method of re-fuelling and hopes that the Lancashire foresight will induce garage proprietors to fit extra long pipe lines to their pumps and so save road work.—G. C. F. N.

The Midland Aero Club Ltd.

Report for week ending Feb. 12.

Total flying time was 10 hrs. 36 mins.

The following members were given dual instruction by Mr. McDonough:—H. D. Coleman, C. Fellowes, S. H. Smith, G. V. Perry, E. R. King, J. C. Rowland, H. Beamish, A. Ellison. Advanced dual: H. J. Willis.

The following "A" pilots made solo flights:—H. J. Willis, W. Swann, G. V. Perry, E. J. Brighton, E. R. King.

Passengers with Mr. Brighton:—L. V. Mann, E. P. Lane, R. L. Jackson, H. A. Boak, Miss Boyes.

Mr. A. R. H. Miller, a member of the Club, has just been gazetted a Pilot Officer in No. 603 City of Edinburgh Squadron. Mr. C. L. Knox, another member who received his flying instruction in the Club, is a Pilot Officer in No. 605 County of Warwick Squadron.—V. M. P.

The Hampshire Aeroplane Club.

Report for week ending Feb. 4.

Total flying time 11 hrs. 35 mins. Instruction flying 6 hrs. 40 mins. Passenger flying 40 mins. Solo flying 3 hrs. 35 mins. Test flights 40 mins.

The following members had instruction:—Lieut. A. R. Cadell, R.N., 2 hrs. 45 mins., Mrs. C. B. Fry 1 hr. 40 mins., Mr. H. P. Snowden 1 hr. 30 mins., Señor de la Cierwa 40 mins., Mr. L. J. C. Mitchell 5 mins.

The soloists were Señor de la Cierwa 2 hrs. 5 mins., Mr. L. J. C. Mitchell 35 mins., Mr. R. H. Cooper 20 mins., Mr. S. Fry 10 mins., Mr. A. M. Keeping 10 mins., Mr. F. T. Courtney 10 mins., and Mr. K. P. L. Bowen 5 mins.

The following members had joy-rides:—Mrs. Fellowes, Mrs. Miller, Mr. W. D. Cox, and the Rev. C. H. Blofield, all with Mr. Thomson. Mr. Fanshawe piloted by Mr. Mitchell and Señor de la Cierwa by Mr. Courtney.

The Establishment Fund, which was inaugurated at the Club's first Annual Dinner in December last, has now reached a total of over £600, and an order has been placed with a contractor to begin the alterations to and decoration of the club-house.

Having read the report of the Lancashire Aero Club in last week's issue, we are very sorry to learn that they are in such a bad way, and trust that their Propaganda Subcommittee (if any) will be able to do something about it. Of course, we now understand

THE RESPONSIBLE PARTIES.—

Members and Officials of the Hampshire Aero Club, with one of the Club's De Havilland Moths (Cirrus engine). Reading from left to right:—Mr. Osman (in front cockpit), Mr. McCracken, Chief Ground-Engineer, Mr. O. E. Simmonds, Chairman of the Committee (in rear cockpit), Major Ross-White, the new Secretary, and Mr. R. H. Bound, Honorary Publicity Secretary to the Club—A good working team.

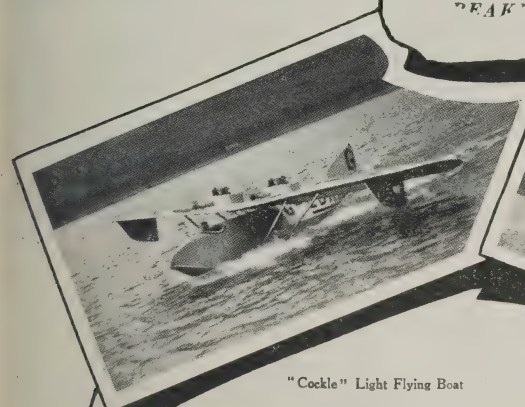


Leading the World

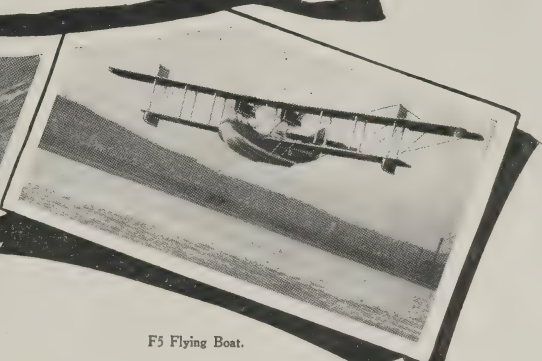
An extract from
"THE TIMES"
of 20th August, 1926.

Short Brothers are now
designers and constructors of all-metal floats.
Other all-metal aircraft are in construction,
and Great Britain may well lead the world in
the all-metal construction of seagoing aircraft
as a result of the independent work done at
Rochester during the last few years.

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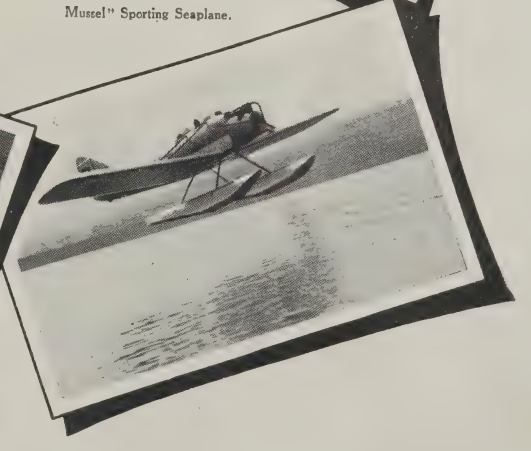
"Cockle" Light Flying Boat



F5 Flying Boat.



"Silver Streak" Biplane



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why our attempt to borrow that telescope and half-crown was null and void.—R. H. B.

Report for week ending Feb. 11.

Total flying time 16 hrs. 25 mins. Instruction flying 8 hrs. 45 mins. Solo flying 7 hrs. 10 mins. Passenger flying 25 mins. Test flights 5 mins.

The following members had instruction:—Lieut. A. R. Cadell 2 hrs., Mrs. F. T. Courtney 1 hr. 40 mins., Mr. E. P. Snowden 1 hr. 35 mins., Capt. H. T. Molyneux, M.C., 45 mins., Mr. F. G. Molony 30 mins., Mrs. C. B. Fry 25 mins., Mr. D. L. Rumble 15 mins., Mr. F. C. Stokes 15 mins., Mr. W. G. B. McKechnie 15 mins., Mr. A. R. Mellor 15 mins., Mr. R. S. Dickson 15 mins., Mr. W. D. Cox 15 mins., and the Hon. H. R. Grosvenor 15 mins.

The soloists were:—Señor de la Cierva 6 hrs. 10 mins., Mr. S. Fry 15 mins., Mr. R. H. Cooper 15 mins., Mr. V. F. Nicholson 10 mins., Mr. A. M. Keeping 10 mins., Mr. D. L. Rumble 5 mins., and Mr. K. P. L. Bowen 5 mins.

Mrs. Jeffery and Mr. Osman had joy-rides with Mr. O. E. Simmonds. During the week Señor de la Cierva passed the practical tests for his R.Ae.C. certificate, exactly one month after his first flight with our instructor. He had flown ten years ago, but had never had instruction until taken in hand by Mr. Thomson.

Will members please note that in future the club will be closed all day on Mondays to give the staff a rest after their usually strenuous week-ends.—R. H. B.

A SPORTING EFFORT.

A singularly sporting series of efforts is described in a letter recently received from Mr. R. F. T. Granger, of "Lenton Fields," Nottingham, the Honorary Secretary of the Experimental Light Plane Club.

This Club has its origin in the efforts of Mr. Granger and his brother—neither of whom is employed in any branch of engineering and neither of whom had ever flown except as a passenger—to obtain practical flying experience at a less cost than such experience usually involves.

As long ago as 1921 Mr. Granger attempted to build a glider, but failed owing to lack of experience. In his own words, "We are still using up parts of it (the 1921 glider) when we need members of vast strength regardless of weight."

In 1924 Mr. Granger and his brother built a second glider, a monoplane of 160 sq. ft., which, except for the wings, was home made. The wings were ancient Avro planes. This was flown once and once only, as the difficulty of getting a handling party out onto a remote hillside at short notice in the early hours of the morning proved insuperable. Nevertheless Mr. J. Granger spent a few seconds more or less in control of a flying machine, and the brothers were so encouraged by this success, and the winning of a few small bets, that they decided to design yet another machine.

This was to be so light and compact that the two brothers could handle it alone and unaided. Design started at Christmas, 1924, and was based on such drawings and photographs as could be found in the aeronautical and other press, supplemented by inquiries on such scrap wings and the like as could be discovered. This machine was a biplane of 160 sq. ft. surface, and by dint of hard work in spare time and at week-ends, the machine was ready for covering by Christmas, 1925.

At about this time Mr. Granger fell in with a Mr. C. Newham, an ex-R.A.F. pilot who was greatly interested in their work. He suggested that the machine be fitted with an engine, as it appeared to be amply strong, and remembering the trouble of handling a glider the constructor agreed.

Mr. Newham at once set about experimenting with a two-stroke engine and constructing an aircrew. The glider fuselage was scrapped and a new one suitable for an engine made. Finally, a 400 c.c. A.B.C. engine was acquired and fitted, and five aircrews were made and tried by Mr. Newham, and the "Linnet," as the machine was christened, was completed in July, 1926.

Without wheels and axles the machine weighed 207 lbs. The lightest aero-wheels that the constructors could discover at a price within their means added 35 lbs. to this, and although they built a pair of wooden wheels they decided to use the heavier type to secure the shock-absorbing qualities of the pneumatic tyres.

For a nominal fee the Air Ministry allowed the use of Hucknall Aerodrome, and thither the brothers Granger sallied hopefully nearly every Sunday morning from July to October before dawn. Unfortunately the machine was under-powered. Nevertheless it has taxied some hundreds of miles round that aerodrome, has been towed across it behind a car and achieved successful glides, and on one occasion made a flight of 100 yards or so at 20-30 feet up, with no breakages other than a slightly damaged tail skid.

During the Summer of the year 1926 a Mr. Howard joined forces and the four constituted themselves a club, and Mr. Howard is now endeavouring to find another engine of greater power than the A.B.C., which is apparently developing about 6 h.p.

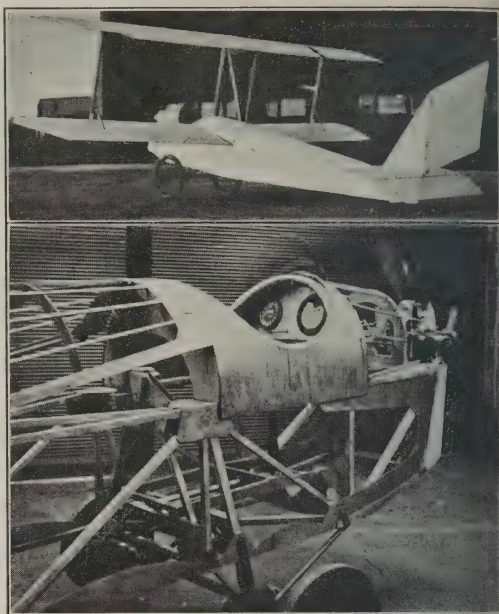
The old monoplane glider is now being fitted with a 7/9 h.p. engine and turned into a two-seater taxying machine for practice purposes to save the biplane from unnecessary ill-usage.

Also it was decided to build a new machine, and after some discussion it was decided that either an Autogiro or a Pterodactyl should be chosen. A six-foot model Autogiro was made but after some experiment it was decided that prolonged experiment would be required before starting work on the full-sized machine. It was therefore decided to make a machine of the Pterodactyl type.

One wing of this machine is now complete, and it is hoped that it will be possible to fly it with the A.B.C. engine, but it is to be tried as a glider towed behind a car before it is fitted with an engine.

The Club has been called The Experimental Light Plane Club. Its objects are to build light aeroplanes and experiment with engines with a view to developing a machine that can be built cheaply and flown cheaply. The members hold that the sporting side of flying has been ignored in this country except for the benefit of relatively wealthy people. The German Summer Camp in the Rhön and similar meetings where young men can fly gliders, etc., at little expense have no counterpart here, and the Club is an attempt to provide somewhat similar facilities in this country.

At the moment the membership of the Club is necessarily limited.



THE LINNET.—The light aeroplane constructed by the Experimental Light Plane Club.

One or two more members able and willing to work on the construction of machines would be welcome, as would a few non-flying members who would be ready to help with the handling of machines on the ground. Any readers of THE AEROPLANE in the neighbourhood of Nottingham who feel that they can usefully take part in the Club activities would do well to communicate with Mr. Granger.

WITH BANJULET TO BENGAL.

Mr. T. N. Stack and Mr. B. S. Leete, who arrived in Karachi on Jan. 8, after having flown from England on two D.H. Moths (A.D.C. Cirrus II engines), left Karachi on Feb. 15 for Lahore and Delhi.

By arrangement with the postal authorities each pilot is carrying 10 lbs. of mail. No extra postage is being charged, but postage stamps will be franked by a special cachet to commemorate the carrying of the first mails across India by light aeroplanes.

JUPITER CONSISTENCY.

The Bristol Aeroplane Co. Ltd. have received from Mr. F. Mayer, the engineer in charge of the engines of the de Havilland Hercules, which have so successfully carried Sir Samuel Hoare on his flight to India and then back to Cairo, a telegram which reads:—

Congratulations perfect running absolute reliability three Jupiters throughout Sir Samuel Hoare's flight. Spares untouched.

The message is brief, but expansion could scarcely add to the satisfaction with which it must have been received.

Many engines have remarkable achievements to their credit. But none can have a finer record of consistent reliability than has the Jupiter.

THE DORNIER IN HOLLAND.

It is reported in the Dutch press that the Nationale Vliegtuig Industrie (N.V.I.), of The Hague, has obtained the licence, for the Netherlands and her Colonies, for the construction of Dornier aircraft. They have recently contracted for the construction of 16 Dornier Wal seaplanes for the Dutch Navy.

These will be identical with a number that were purchased in Italy last year for use in the Dutch East Indies, except that they will be fitted with two 450 h.p. Lorraine-Dietrich engines each.

The N.V.I. has also received an order to construct a twin-engined float seaplane to be known as the type T.IV. This will also be equipped with two Lorraine-Dietrich engines.

DIRECTION-GIVING AS IT IS TO-DAY.

Two officers, names unknown, one of whom had had a hand in the R.A.F. flight to the Cape, and the other in the R.A.F. flight to Nigeria, were overheard discussing African flying, when the Cape flier said casually, "Just exactly where is Nigeria?" To which the Nigerian flier replied, "Well, you go as far as Khartum and then turn sharp right and keep straight on."

As an example of how air transport shrinks distances, that is quite an illuminating remark.

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REACH FOR THE CALENDAR
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15th MAY, 1927.

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Appreciation

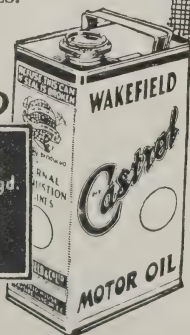
MR. T. Neville Staek and Mr. Bernard S. Leete, of the Lancashire Aero Club, who set up a record for light planes by touring on their "Moths" to India, have cabled:

"CONGRATULATE YOU EXCELLENCE OF YOUR OIL GAVE US EVERY SATISFACTION THROUGHOUT OUR FLIGHT FROM LONDON TO KARACHI ON LIGHT AEROPLANES."

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COMMERCIAL AERONAUTICS. The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE WEEK ENDING FEB. 6.

Trips per Day—Monday, 11; Tuesday, 12; Wednesday, 11; Thursday, 11; Friday, 8; Saturday, 10; Sunday, 1.

IMPERIAL AIRWAYS LTD.:

London—Paris; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam; Cairo—Karachi: Machines 26, passengers 105, freight 9 tons.

AIR UNION:

Paris—London: Machines 15, passengers 22, freight 12½ tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 12, passengers 10, freight 2 tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 10, passengers 13.

SABENA:

Brussels—London: Machines 6, passengers 6.

PRIVATE:

Machines 1, passengers 1.

Total number of trips by British Machines, 27, carrying 106 passengers. Foreign Machines, 37, carrying 45 passengers.

Comparative Figures:

Week ending Feb. 6:

Machines, 57; Passengers, 151; Crews, 105; Total personnel, 256.

Corresponding week, 1926:

Machines, 57; Passengers, 122; Crews, 70; Total personnel, 192.

Corresponding week, 1925:

Machines, 59; Passengers, 86; Crews, 73; Total personnel, 159.

Corresponding week, 1924:

Machines, 69; Passengers, 103; Crews, 107; Total personnel, 210.

Corresponding week, 1923:

Machines, 50; Passengers, 144; Crews, 87; Total personnel, 237.

Corresponding week, 1922:

Machines, 54; Passengers, 92; Crews, 87; Total personnel, 179.

Corresponding week, 1921:

Machines, 22; Passengers, 25; Crews, 27; Total personnel, 52.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day—Monday, 5; Tuesday, 10; Wednesday, 11; Thursday, 12; Friday, 4; Saturday, 7; Sunday, 2.

IMPERIAL AIRWAYS LTD.:

London—Paris; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam; Cairo—Karachi: Machines 18, passengers 74, freight 8 tons.

AIR UNION:

Paris—London: Machines 15, passengers 26, freight 7 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 11, passengers 5, freight 2½ tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 6, passengers 9.

SABENA:

Brussels—London: Machines 6, passengers 6.

PRIVATE:

Machines 1, passengers 0.

Total number of trips by British Machines, 19, carrying 74 passengers. Foreign Machines, 32, carrying 40 passengers.

Comparative Figures:

Week ending Feb. 13:

Machines, 51; Passengers, 114; Crews, 84; Total personnel, 198.

Corresponding week, 1926:

Machines, 40; Passengers, 88; Crews, 51; Total personnel, 139.

Corresponding week, 1925:

Machines, 61; Passengers, 78; Crews, 70; Total personnel, 148.

Corresponding week, 1924:

Machines, 50; Passengers, 86; Crews, 78; Total personnel, 164.

Corresponding week, 1923:

Machines, 26; Passengers, 75; Crews, 49; Total personnel, 124.

Corresponding week, 1922:

Machines, 30; Passengers, 57; Crews, 47; Total personnel, 104.

Corresponding week, 1921:

Machines, 20; Passengers, 32; Crews, 35; Total personnel, 67.

Croydon Notes.

Croydon was very much on the Secret List during the last week-end and still is at the moment of writing. Thick fog arrived on Thursday evening and has persisted ever since with a bright interval on Saturday afternoon, which permitted Mr. Jones, on a W.10, to get in from Lympne, and on Sunday afternoon which enabled M. Dennelin to take a Goliath from London to Paris.

The hero of the fog however was Mr. Smirnoff who has flown so well and so long for K.L.M. On Saturday morning when the fog was so thick that it was impossible to see the new buildings or the A.D.C. works from the Customs enclosure, Mr. Smirnoff pushed off on a Fokker F.VIIa at 11.58 hrs. and reached Rotterdam at 14.25 hrs.

He considered that he was taking no risks as the wonderful manoeuvrability and slow landing of the Fokker and the reliability of the Jupiter and the presence of radio-telephony gave him complete confidence. His was an extremely notable performance and he deserves much credit.

M. Bañac arrived on the Lioré et Olivier amphibian on Wednesday. He had intended to fly to Hammersmith on Friday and alight on the river at the Tea Rose Wharf belonging to the Anglo-American Oil Co.

Ltd. Here he was to take on passengers and fly to Paris, alighting on the Seine at the Quai d'Orsay. Unfortunately the fog has up to now prevented this.

If such a service is to be practicable some port other than Hammersmith must be used. For one thing Hammersmith is too far out of Central London and also one is told it can only be used at high tide. The ideal place would be between Lambeth Bridge and Vauxhall Bridge. Mr. Stanley Cockerell alighted here in a Vickers Viking on several occasions at low tide in a strong cross wind. Pilots say that on this reach (and probably on others) there is a draught near the water caused by the buildings which is always blowing along the reaches.

The Croydon licensing bench showed wisdom on Feb. 9 by granting a licence for the new aerodrome hotel which Barclay and Perkins Ltd. are to build with the new Terminal block. Building however cannot begin until April as the decision has then to be confirmed.

One is told that the Opposition which always turns up on these occasions are well worth seeing and hearing and might well be included in a London Revue. They are said to be funnier than anything put on for years.

One cadaverous-looking gent gets up and intones an oration saying that he represents the Free Churches, the Christian Young Men and Women of the World, and sundry other people. It would be interesting to know how many of the people whom these persons say they represent have been consulted. Obstructionists as they are these objectors are certainly very funny and do definitely add to the gaiety of nations.

On the subject of driving in fog, one would like very definitely to recommend motoring aviators to try out a set of Philipp's Daylight Blue bulbs in their head lights coupled with some form of dipping headlights.

Recently one had the Morris Oxford and Asquith fitted with a set of Sheffield Simplex dipping apparatus. It is worked by a small lever fixed on the steering column with a ratchet so that any angle of dip may be used. The Philipp's lamps, which, when no fog is present light the road as well as, and in one's own opinion, better than other lamps, have the effect of not illuminating the particles of moisture in the fog. The result is that they penetrate the fog much as daylight does.

On Sunday night when most traffic was at a standstill and the fog was so thick that one could not see across the road, one was able to drive into London in but little over normal time. The dipping lights and Daylight Blue lamps enabled one to see the kerb at least 25 to 30 yards ahead all the time. One commends both these devices to Croydon motorists.—G. D.

THE KHARTUM-KISUMU AIR SERVICE.

The first machine, a Fairey IIID, temporarily loaned to the North Sea Aerial and General Transport Co. Ltd. by the Air Ministry to replace the D.H.50, which was damaged in a test flight, arrived at Kisumu on Feb. 13 from Khartum. The pilot was Capt. T. A. Gladstone, the organiser of the service.

It left with the mail on the return journey on Feb. 14. Air Vice-Marshal Sir Sefton Branker, who accompanied Sir Samuel Hoare on various stages of the England-India flight and who is now in Cairo, will leave Khartum on Feb. 20 for Kisumu by this service, where he is due to arrive on Feb. 22. He will return to Cairo on March 3 and will then return to England.

AN AUSTRALIAN NIGHT AIR MAIL SERVICE.

The Australian Government will shortly call for tenders for the establishment of an air mail service between Adelaide and Perth. The service will entail night flying, and machines of the D.H. Hercules type have been suggested as suitable equipment for this route.

The Government is prepared to clear landing grounds, to provide aerodromes and to assist in the service, but does not expect to have to pay a subsidy. It is estimated that the time for mails between Perth and Sydney will be reduced by four days each way.

AN AIR ROUTE ACROSS INDIA.

It is stated that the Government of India has decided to lay down a definite air route with a chain of landing grounds across the country, from Karachi to Victoria Point, on the Burma-Malaya border. The cost of completing the chain of landing grounds is estimated at £11,250, and the Legislative Assembly is being approached to sanction the estimate.

SOUTH AFRICAN DEVELOPMENTS.

It is reported from South Africa that the Johannesburg-Durban air service, which has been under discussion for a considerable period, is to be financed by the "Sir Alan Cobham Aviation Co." The statement says that the capital guaranteed is £30,000 and that de Havilland aircraft will be used.

The consent of the Union Government is expected within the next month, and the promoters hope to begin operations in August or September.

The South African Government are prepared to pay an

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KINDLY MENTION “THE AEROPLANE” WHEN CORRESPONDING WITH ADVERTISERS.

annual subsidy of £8,000, and it is understood that any subsidy granted by the Post Office for the carriage of mails would be distinct from the Government subsidy.

AN OSLO—HARWICH AIR SERVICE.

The Norwegian Aero Club, through Dr. C. A. Raestad, a former Foreign Minister, has arranged for a series of trial flights to be made between Oslo and Harwich with a view to examining the possibilities of a regular air service between these two points.

Two alternative routes will be tried, one via Christiansand, Jutland, Cuxhaven and Amsterdam, and the other along the Swedish coast to Kiel and Amsterdam.

Altogether eight test flights will be made at brief intervals. The machine to be used will be the Dornier Wal (two 350 h.p. Rolls-Royce Eagle engines), used by Capt. Amundsen on his 1925 Polar Expedition.

The air route is to be subsidised by the Norwegian Government, the Municipality of Oslo and various private individuals.

AIR TAXIMETERS.

Air Taxis Limited sent to THE AEROPLANE recently an interesting letter from an inventor who wishes to fix a new patent taximeter to the firm's aircraft. Unfortunately, he does not intimate how the kind of meter which is fitted to an automobile taximeter cabriolet, otherwise the vehicle known to the Licensing Department at Scotland Yard as a "Mechanical Clarence," can be adapted to an aeroplane. Probably he imagines that the wheels go round all the time.

All the same, it is conceivable that some day taximeters may be fitted to air taxis. Presumably they would be driven by windmills in the manner of dynamos for radio work, or petrol pumps, and would be designed so as to indicate the number of miles actually flown through the air, regardless of speed over the ground. Presumably their purpose would be to prove to the "fare" that the machine had actually flown that distance through the air and that the long time taken over a journey against a head wind was not merely due to the pilot's wasting time and running with his engine throttled.

NEW COMPANIES.

HENDERSON FLYING SCHOOL, LTD.—Private company. Registered Feb. 7, Capital £2,000 in £1 shares. To acquire the business of an instructor in aviation, aerial navigation and dealer in aeroplanes, aeroplane engines, parachutes and the like and all component parts and spares therefor carried on by Lt-Col. G. L. P. Henderson at Croydon Aerodrome, and 15, Carrington Mews, Mayfair, W. The first directors are: Lt-Col. G. L. P. Henderson, 6, Maiden Lane, W.C.2, air pilot (permanent director and chairman). B. William, 3, Westwell Road, Streatham, S.W.16, accountant. Qualification: 1 share. Secretary: W. Bertram. Registered office: Kibraz House, 15, Carrington Mews, Mayfair, W.1.

PERSONAL NOTICES.

DEATH.

ERSKINE-MURRAY.—On Feb. 12, at 7, The Retreat, Portsmouth, James Robert Erskine-Murray, D.Sc., F.R.S.E. (late Major R.A.F.), dearly beloved husband of Allene Erskine-Murray, and eldest son of Alexander Erskine Erskine-Murray.

MARRIAGES.

BLACKER—PEEL.—On Feb. 15, at St. Margaret's, Westminster, Major L. V. S. Blacker, The Guides, and late R.F.C., eldest son of the late Major Latham Blacker, and Mrs. Blacker, to the Hon. Doris Peel, daughter of the Viscount and Viscountess Peel.

MACLAREN—BLUETT.—On Feb. 12, at St. Columba's (Church of Scotland), Pont Street, by the Rev. Archibald Fleming, D.D., and the Rev. Peter MacLaren, M.A., Rathillet, Cupar (father of bridegroom), Hamish D. MacLaren, D.F.C., B.Sc., to Lorna, eldest daughter of Dr. Reginald Bluett, M.C., Harrow.

FORTHCOMING MARRIAGES.

DE NEVERS—VOLKERT.—A marriage will take place, quietly, at St. Mark's, Penslake, on Mar. 8, between Mr. Bernard de Nevers, late R.A.F., only son of the late Albert de Nevers and Mrs. de Nevers, and Miss Cecily Volkert, third daughter of Mr. Charles Volkert and the late Mrs. Volkert and grand-daughter of Dr. Chrysander.

GOURIET—PRENDERGAST.—The engagement is announced between Alfred William Edward Gouriét, late Middlesex Regiment and R.F.C., only son of the late Mr. and Mrs. A. V. Gouriét, of Chelsfield, Kent, and Mary Douglas, only child of Dr. and Mrs. William Prendergast, of The Close, Winchester.

KIRBY—CHISHOLM.—A marriage has been arranged, and will take place on Feb. 28, between Flt. Lt. John Lawrence Kirby, R.A.F., elder son of Mr. and Mrs. Wilson Kirby, of Holme House, Bishop's Thorpe Road, York, and Agnes May, youngest daughter of the late Mr. and Mrs. Edward Chisholm, and step-daughter of Mrs. Edward Chisholm, of Moray, Nairn, N.B.

POTTER—SPICER.—The engagement is announced between Sydney Barnett Mackenzie Potter, late London Regiment and R.A.F., only son of Mr. and Mrs. Potter, of Cranbrook Park, Essex, and Miss Ursula-Dykes Spicer, youngest daughter of the Right Hon. Sir Albert Spicer, Bt., and Lady Spicer.

BIRTHS.

BLACKFORD.—On Feb. 9, at Kumau, Gerrards Cross, Bucks., to Flt. Lt. and Mrs. J. Blackford—a son.

LEDER.—On Feb. 6, at Wimbledon Park, to Marjorie, wife of Flt. Lt. L. de L. Leder—a daughter.

VAUGHAN.—On Feb. 8, to Margaret (née Southard), wife of Flt. Off. E. S. C. Vaughan, R.A.F.—a daughter.

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Edited by
C. G. Grey

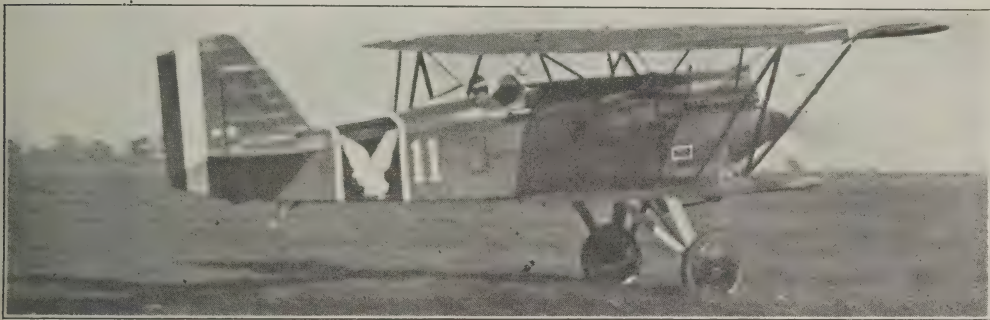
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Registered at the G.P.O.
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"CRY HAVOC! AND LET SLIP THE DOGS OF WAR."

(SHAKESPEARE—Julius Caesar.)



GIVING HER THE GUN:—A Curtiss P.1 (Hawk) (400 h.p. Curtiss D.12 engine) the standard pursuit aeroplane of the U.S. Air Corps about to take off. The same type fitted with twin pontoons and known as the F6C-3 is a standard Naval pursuit seaplane. Another version, known as the AT-4, with the 140 h.p. Hispano-Suiza or the 200 h.p. Wright Whirlwind radial, is used for pursuit training, and still another, known as the F6C-4 and fitted with the 400 h.p. Pratt and Whitney Wasp radial, has been adopted by the U.S. Navy for fighting purposes. (*Anglo-Saxon*: Havoc—a Hawk.)



MARCONI WIRELESS APPARATUS

Amundsen's flight in the airship Norge across the North Pole and Major Franco's aeroplane flight to South America have proved the immense value of Marconi wireless telegraph and direction finding apparatus to long distance flying expeditions, by providing all-important meteorological reports and valuable route-finding information.

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In the standard production "Avian" it has been possible to utilise the extra load capacity by providing ample accommodation for luggage and large fuel capacity, while still permitting a reserve of engine power which ensures safe flying in all circumstances.

The "Avian" has a top speed of 105 miles per hour, and an economical cruising speed of 90 miles per hour, carrying petrol sufficient for a four hours' flight.

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ON "THE MOST IMPORTANT NOWADAYS."

Apparently British Aviation is on the verge of salvation. The true gospel seems to be penetrating into those communities which reflect, and sometimes even direct, the feelings of the mass of the great British Public. One is moved to this expression of hopefulness by an able letter which appeared in *The Times* on Feb. 17 written from The Authors' Club by Mr. Paulet S. Mildmay.

In these days of pressure one has little time for reading, so one has to confess regretfully to entire ignorance of Mr. Mildmay and the works of which he is the author. But, judging by his letter, he can write sense. Briefly, this letter consists of a complaint that the Civil Service costs this tax-ridden nation £307,000,000 per annum and, even allowing for deductions for war pensions, etc. (£70,000,000), the Civil Service total is still five times greater than it was before the War (£55,000,000 in the estimates of 1913-14).

He continues "Whereas the cost of the reduced Navy (£60,000,000) and Army (£44,000,000) plus (the most important nowadays) the Air Force (£15,000,000) is about the same as before the War, the Civil Service has now become the heaviest item of the taxpayers' colossal burden."

Even assuming that Mr. Mildmay is above the average of intellect among authors and journalists, as we may safely do seeing the sanity of his views, we have here at any rate an indication that, among the people who write, the Air Force is at least becoming regarded as the most important nowadays among the Services. And one can only hope that his views may become ere long those of the average person who writes. When they do they will be also the views of the mass of the British Public. And then we may have a real Air Force.

THE STATUS OF THE ROYAL AIR FORCE.

Several years ago the Royal Air Force was officially recognised as being the First Line of Defence of the British Empire. But in spite of that, the scheme for the expansion of the Royal Air Force which was then proposed, has had to be held up for several years. This is not so much because of the general poverty of the British nation, which is still by the Grace of God the best fed, best housed, best clothed, and best amused nation in the World, but because we have a fondness for paying our debts to other nations even though we receive no payments from nations which are debtors to us.

Also the General Strike of 1926 and the prolonged Coal Strike have done a good deal to impoverish the nation, and the trade boom which is making a very sporting effort to begin

is not exactly thrusting money into everybody's pockets as yet. Consequently the Air Force has not been getting the money which it would have had if the Nation's financial state had been normal, and it is not likely to get it in the Air Estimates for 1927-28 which will soon be laid before the Houses of Parliament.

One of the speakers at the dinner last week of the Women's Advertising Club is reported as having remarked that modern feminine dress is like barbed wire, in that it affords adequate protection but does not obstruct the view. A mere masculine humorist has suggested that the Royal Air Force might be described by an inversion of this story as obstructing the view, that is to say the proper view of Imperial Defence, without affording adequate protection.

The question in which everybody concerned with aviation is most interested at the moment is whether the forthcoming Air Estimates will give a proper view of this vital question of Imperial Defence or whether our official people will still camouflage the situation by impressing on Parliament the enormously high efficiency of the Air Force.

THE TASKS OF THE R.A.F.

One is quite prepared to admit that the R.A.F. is very much more efficient than any other Flying Service in the World. The commander of any R.A.F. Squadron would be quite justified in taking on any existing foreign Air Force, except the Americans, at odds of five or six to one against his own people. But that is not the point. The strength of our Air Force must not be proportionate to the strength of the next biggest Air Force in the World, it must be proportionate to the size of the British Empire.

Also we must remember that in the next war the Air Force will have to do not only all its own work, but all the work of the Fleet at sea, as well as at least half of the aircraft work, coast patrol work, and coast defence work which the Navy ought to do with its surface ships, which the War 1914-18 proved the Navy was incompetent to do. Furthermore the R.A.F. will have to do a great deal of over-land flying in co-operation with our own Expeditionary Forces on land, and as the Air Arm of the armies of our Allies,—for we may assume that when the war in Europe begins Germany will be able to raise and put into the field a formidable army long before she can build and man an air fleet.

That being so, it is obviously absurd that the equipment of the Service which is the most important nowadays should be hampered for the lack of a few millions of pounds which could easily be pared off our overgrown Civil Service, com-



FOR THE GOOD OF THE NAVY.—The Fairey Ferret (Bristol Jupiter engine). A three-seat Fleet Reconnaissance machine, with deck-landing undercarriage and catch-hooks for arresting-gear cables.

posed as it now is of all kinds of hampering and hindering inspectors and officials and tax-gatherers of kinds of which nobody ever dreamt before the war 1914-18.

ROOM FOR REFORM.

For the matter of that we could very well get very much more and very much better equipment than we do out of the paltry £15,000,000 which is spent on the Air Force if we reorganised properly our existing system of selecting, experimenting, testing and buying aircraft and aircraft material. Merely by reorganising the system of selecting and testing and contracting, we could very easily save a million on the price of our aircraft, and yet allow the manufacturer of aircraft material better profits than he has at present.

If the manufacturer were not so hampered by delays in testing and inspecting, and in approving and disapproving designs, and so forth, and if he could get decisions from Air Ministry Departments without wasting time (and money) he could reduce his prices very considerably, and still make a better profit than he does.

These are all matters to which the new Member of the Air Council for Supply and Research could very well devote his proven ability and experience with considerable advantage.

One of the reasons why aeroplanes and engines cost so much is that there is no assurance of continuity of orders. Aircraft manufacturers have always been urged to keep their staffs together and to keep their workshop hands together. But contracts are placed in such an irregular and apparently purposeless manner that it is almost impossible for the firms to organise anything like regularity of output.

A factory may be running night-shifts for three months and then the whole plant may be flat idle for perhaps another six months, whereas by intelligent ordering the whole plant might be running ordinary full time from year's end to year's end. The natural result of this irregular ordering is higher prices for such machines as are delivered. So obviously by more intelligent buying the Air Force could get more machines for the same money.

Another ill effect of bad management in the placing of contracts is that money which is actually voted by Parliament for buying new aircraft does not get spent and has to be "returned to store," as money which has been voted for one financial year may not be carried over to the following year.

A MATTER OF ESTIMATES.

There will be much interest in discovering whether in fact the money which was voted for new aircraft and engines for 1926-27 has actually been spent.

Early in 1926 Sir Samuel Hoare assured the Aircraft Industry that the amount to be voted for 1926-27 for new aircraft and engines would be approximately the same as was the amount voted for 1925-26, but that there would be rather less money spent on engines. The accuracy of Sir Samuel's statement may be judged by the fact that the sum voted for 1925 was £2,908,000, and the sum voted for 1926 was £2,888,000, quite a trivial difference, and that the amount voted for engines in 1925 was £1,537,000 against the 1926 vote of £1,031,000, a drop of half a million.

So it may be seen that Sir Samuel's statement was absolutely truthful, as have been all the statements which one has ever known him to make, either in the House of Commons or out of it. What we have now got to discover is whether, that money having been voted according to Sir Samuel Hoare's statement, all of it, or even the greater part of it, has in fact been spent on new equipment.

In the first place the Air Ministry financiers have a very nasty habit of classifying the money paid for reconditioning aeroplanes of obsolete types as being expended on new machines. Of course from the point of view of the shareholders in the individual aircraft firm, and of the man in the workshop, it may not matter whether they are paid for rebuilding antiquated corks or whether they are paid for the very latest and most efficient type of aircraft of war.

But it does matter a whole heap to the individual Flying Officer, who has to fly the things, and to the Air Staff, for whom victory or defeat may depend on the efficiency of the aircraft with which they have to operate, and to the individual citizens of the British Empire, whose life or death depends on his Air Defences, and to the British Taxpayer, whose money ought to be spent on up-to-date material and not on rebuilding craft which are useless for war.

Probably, if Questions were put in the House, Parliament would be informed that all the money allocated for new aircraft and engines for 1926-27 had been spent, or at any rate that orders have been given which will absorb all the money before the end of the financial year on Mar. 31. But if one goes and asks questions from the Aircraft Industry one finds that it is very difficult to get a satisfactory answer to such questions.

HOW THE TRADE STANDS.

Some firms have certainly had a very good year in 1926. Some new types have been ordered in quantities which have at any rate kept the makers of those types busy for many months of the year—though no one firm, so far as one has been able to discover, has been kept busy all the year round.

Others firms have been kept moderately busy on machines which, though new in the sense that they are not old machines rebuilt, are of types which ought to have been obsolete four or five years ago.

Others firms again have been doing nothing except build a few experimental machines and have not been using a fraction of their available factory space. And yet others have been doing nothing except rebuild obsolete types which were originally designed somewhere about the middle of the War 1914-18.

All of that means inefficiency, and consequent expense, in output. And it means inefficiency in the Air Force itself because the Squadrons are equipped with out-of-date fighting machines.

SUPPLY PROBLEMS.

Admittedly the job of the Air Member for Supply and Research is extremely difficult, especially on the Supply side. Although Research is supposed to be a terribly difficult technical task it is in fact mere child's play compared with Supply, because there are so many lines along which Research



A SHIP OF THE DESERT.—The De Havilland Hercules (three Bristol Jupiter engines) carrying the Secretary of State for Air, and his party, on the way to India; photographed from an accompanying aeroplane somewhere between Basra and Karachi.

“No engine has better proved its claim to reliability.”

Major F. A. de V. Robertson,
“Aircraft,” Oct. 1926

The following are a few of the Napier achievements showing the consistent reliability of the Napier engine. All these flights were official and were accomplished without any mechanical trouble:

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ought obviously to be pursued that it is quite easy to keep the whole of the Research Staff busy on really useful problems. And, even though the technical experts, when left to themselves, waste such an immense amount of time and money researching after things that do not matter, the total amount of money spent on Research is comparatively small compared with that which ought to be spent on Supply—and is not.

WHAT TO BUY.

The real difficulty about Supply is deciding what types of machines to buy. Obviously it would be foolish to order in quantities machines which are inferior to those which foreign nations already possess.

For example, knowing the performance of the standard Curtiss Hawk, and guessing at what the performance of the new Boeing pursuit-ship with the inverted engine ought to be, it is merely silly to order in quantities single-seat fighters which have performances inferior to those of the American pursuit-ships. And knowing the performance of the general-purpose and observation and reconnaissance and bombing Breguet XIX, it would be equally silly to order British machines to replace the Bristol Fighter and the D.H.9a which have a performance inferior to that of the French observation machines. So the Supply Department must necessarily order machines better than those of foreign countries.

If it is to achieve anything like standardisation in the equipment of the R.A.F., which is a necessity in time of war, the Supply Department cannot go ordering from each of the twenty firms which compose the Aircraft Industry a whole stock of the particular machines designed and constructed by that particular firm. And any other policy means that some firms must have quite big orders for machines of their own design, while other firms must either go without orders at all, which means shutting down their plants and perhaps going out of existence, or they must be content to work as sub-contractors for the firms whose designs have been more successful.

After all, that only means trusting to the ability of their own design staffs to turn out something in the future which will be so superior that they in their turn will get the orders for the new types—which their successful competitors of the present moment will then have to make under sub-contract. And a firm which is so badly managed that it employs incapable designers will be better out of business anyway. There are plenty of young designers who could produce better aircraft than anything we have got nowadays.

SUB-CONTRACTING.

This question of sub-contracting is itself one of the most difficult problems which the Supply Department has to solve.

If a firm produces a design of outstanding merit, it is obviously unfair to deprive that firm of its just reward, which is the profit on the whole order which should be placed for that successful type. But giving that firm the whole order means working overtime for perhaps a whole year in that one factory, while other factories which are equally of value to the nation as a source of material for defence will be standing idle.

If the Supply Department insists on splitting up the order between several factories, then the originator of the design makes less profit than he should, and the other firms make a profit which they do not deserve. Added to which the originator of the design has to give away all his designs, and his pet methods of construction, and other things which amount to trade secrets, to his competitors. Which also is obviously unfair.

Furthermore there is the point that while all British aircraft firms make good aeroplanes, just as all British breweries make good beer, some make better aeroplanes than others, and it is rather hard that a firm which makes superlatively good aeroplanes should have in the service of the R.A.F. machines bearing that firm's type-name which, because they are built by somebody else, are not as good as those built by the original design-firm.

That was a trouble which was constantly occurring during the War 1914-18. For example, de Havilland aeroplanes built by the Aircraft Manufacturing Co. Ltd. were beyond reproach. But some of those built by the mushroom war-profiteering firms were an abomination, in spite of the best efforts of the Aircraft Inspection Department.

Personally one believes that the best way out of this particular difficulty would be for the Air Ministry to place the whole order for a successful type of machine with the original design-firm, and then for Air Ministry arbitrators or referees to arrange that component parts were to be built on an amicable and profitable basis by sub-contracting firms to a sufficient extent to keep those firms just sufficiently busy to prevent them from closing down their plants.

In this way the firms which had not been successful with their designs would be kept alive and their own design staffs would be spurred to greater efforts. That at any rate would keep the directors of the firms as well as the design staffs from growing fat and lazy out of the profits which they would otherwise make out of the designs of other people.

These are really the chief problems before the Air Member for Supply and Research, and one wishes him a happy issue out of all his afflictions. Particularly does one hope that the Air Estimates for 1927-28, which must by now have been prepared for presentation by the Secretary of State for Air, will show an increase in the amounts allocated for complete aircraft and engines. For the Air Force is sadly in need of new equipment, practically throughout.

Whether we get enough money will depend largely on whether those who draw up the trial Estimates ask for enough. Their attitude should always be that of the Irishman who, when he was asked whether he had got a good price for his pig at the fair, replied, "Well! I didn't get what I expected. But then I didn't think I would."

THE NEEDS OF THE R.A.F.

One doubts whether there are more than three or four squadrons in the R.A.F. equipped with aeroplanes which have actually a better performance than those of squadrons intended for similar purposes in foreign Air Forces. Granted that our pilots are better on the average than those of any other Air Force, and granted that our machines are better built, there still remains the fact that our people would be simply outclassed, just as the officially designed B.E.2cs were outclassed by the Fokker monoplanes in 1915 and 1916.

There is no use in having single-seat fighters which will climb to 30,000 feet with super-charged engines if your enemy has single-seat fighters which are thirty or forty miles an hour faster and simply go by on a lower level so fast that they cannot be caught when the high altitude machines descend. And there is no use in having night-bombers which carry a ton or so of bombs more than those of enemy bombers if the said night-bombers are so slow that even if they start the day before yesterday they cannot reach their objectives before full daylight to-morrow.

If our Air Force is to be equipped so that it can take on any other Air Force at the odds to which British fighting men have always been accustomed, the Air Estimates must give the Supply Department enough money to spend. Then the Air Member for Supply and Research can be trusted to see that it is properly spent.

Also the Air Estimates must also allow the Air Staff and the Air Member for Personnel enough money to expand the size of the Air Force, even more rapidly than was provided by the original programme of expansion, so that we may have an Air Force capable of doing its own job as well as that of the Navy and of our own expeditionary Force and of our Allies' Armies. Only then, and not till then, shall we have an Air Force of adequate importance.—C. G. G.

A FLYING CLUB FOR WESSEX.

It is with great pleasure that one is authorised to announce the formation of the Bristol and Wessex Aero Club. The organising secretary, *pro tem*, is Mr. C. Sidney Clarke, Flying Officer, Reserve of Air Force Officers, whose address is Channel Road, Walton Park, Clevedon, Somerset. Any readers of THE AEROPLANE within reach of Bristol who would like to join the Club are invited to communicate with him as soon as possible. The greater the amount of moral support received now, the greater is bound to be the amount of financial support which will be forthcoming. Demand always creates supply.

The Club is fortunate in having as its Patron His Grace the Duke of Beaufort and it has already secured the adherence of the Lord Mayor of Bristol, Sir Beddoe Rees, M.P., Col. H. C. Woodcock, M.P., and numerous other notabilities of the capital city of the West country.

Headquarters will be in Bristol and an aerodrome is being sought within easy access of the City, the aerodrome of the Bristol Aeroplane Co., at Filton, will obviously not do for the Club as it is an R.A.F. Reserve aerodrome and there will shortly be an Auxiliary Air Force squadron stationed there as well. Also Service machines are liable to cramp the style of beginners on light aeroplanes, and the said beginners may possibly get in the way of Service work. As soon as aerodrome accommodation is decided the Club's first machine will be ordered.

The Club will be run on lines similar to those of the six approved Clubs. And one is glad to hear that several of those responsible for the existing Clubs are giving generous and valuable service to the Bristol and Wessex Aero Club, as also is the Department of Civil Aviation, though unfortunately there does not appear to be very much hope of the new club acquiring financial aid from the Government.

Readers may reasonably ask how it is that Bristol, the home of the very first limited company to be formed in this country expressly to manufacture aeroplanes on a production basis, should be so late in the day to start an Aero Club. As one who resided in Bristol for many years, one can say without much fear of contradiction that Bristolians think for some time before embarking on an undertaking, but that when they have made up their minds they do things

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well. Therefore one has every confidence in the ultimate success of the new Club.

A prospectus combined with a form for application for membership is now in the hands of the printers and will be sent as soon as available to all who write to Mr. Clarke and express their interest in the Club. No members will be elected until the question of the aerodrome has been settled.

One hopes that the numerous merchant princes of Bristol will give the Club adequate financial support and one wishes it success in increasing air mindedness in the West Country.

THE HAMPSHIRE AIR PAGEANT.

The Hampshire Air Pageant organised by the Hampshire Aeroplane Club will take place on Sunday, May 15, at the Hamble Aerodrome. Everybody connected with aviation should make a note of this date as it will be not only the first important flying meeting of the year, but it will also be the first amphibious air display to happen in this country, for it will include land machines, seaplanes and flying-boats.

Scratch and handicap races for all types of aircraft will be included in the programme, and particular interest will be attached to a race for light aeroplanes the conditions of which will be specially arranged to demonstrate the ease with which the owner-pilot's machine can be handled on land and in air.

The proceedings will begin at 14.30 hours with a "fly past" of aircraft, which, the Club hope, will include many of the most recent types of Service and civil aircraft. By kind permission of the Air Council exhibition flights will be given by Southampton boats and Woodcock single-seaters.

Adequate accommodation will be provided for 25,000 people. The Southern Railway have decided to issue half-fare tickets to all spectators and will run special trains to the aerodrome from London and large provincial centres. Motor-coaches will run to Hamble from all adjacent parts of Southern England at special fares, which will include admission to the aerodrome. Also special steamers from the Isle of Wight and from Southampton will land passengers at Hamble, within five minutes' walk of the aerodrome.

As was remarked in a brief note last week, the staff work of the Pageant is being excellently organised. The work is being cut up into sections, and, incidentally, much delay will be prevented if all correspondence relating to the Pageant be addressed to the appropriate section of the Secretariate. These sections are as follows:—Enclosure, Traffic and Police, Publicity, Tickets, Competition Entries, Bands and Wireless, Refreshments, Transport, Programmes, Finance, and Engineering.

As an example of the general scheme, one may point out that spectators will be encouraged to arrive early so as to relieve traffic congestion, and to encourage them a first-class lunch will be served from noon onwards. Tea and light refreshments will be provided in all the enclosures. Further, to encourage early arrival, the gates will be open at 12.00 hours. Prices of admission will be 5s., 2s. 6d., and 1s. plus 2s. 6d. per motor-car.

A publicity scheme on a large scale, at any rate the largest attempted in the history of air racing since the days of Richard T. Gates at Hendon, is to begin in the course of the next week or so, and it will end with a month's intensive advertising in Hampshire and the adjacent counties. This will include advertisements in all the prominent local daily papers and the extensive use of hoardings, railways, public road vehicles, cinemas, theatres and so forth.

From all this it will be gathered that the Hampshire Air Pageant promises to be a most attractive display of sea and air craft. The Hamble aerodrome has quite the prettiest surroundings of any in England. And if only the weather hooses to be kind the meeting ought to be quite one of the most successful which this country has seen.—C. G. G.

THE SECRETARY OF STATE FOR AIR.

The Secretary of State for Air and the Lady Maud Hoare returned from their air tour of India on Feb. 17. The flight from Paris to London had to be abandoned owing to persistent fog.

Sir Samuel Hoare has flown about 12,000 miles in the course of the tour and the Lady Maud Hoare has flown about 10,000 miles.

The Secretary of State for Air was greeted on his return by Lord Lucan representing His Majesty the King, Sir Philip Sassoon, Under-Secretary of State for Air, Marshal of the Royal Air Force Sir Hugh Trenchard, Air Vice-Marshal Sir John Higgins, Sir Walter Nicholson, and others.

In the course of an interview, Sir Samuel Hoare said that the very heavy programme arranged had been fulfilled in every respect. The whole of the 10,000 mile flight in the *City of Delhi* had been done without the need of any spare part or any repair either to the machine or the engines. A further 2,500 miles had been flown in a Service D.H.9a. During the whole of the tour there had not been a forced landing or a breakdown of any kind.

He paid a warm tribute to the efficiency of the two pilots and the navigator and said that the trip had not been entirely a fair-weather one. They had experienced dust-storms, an earthquake, snow, rain and fog.

He thought that a route of this kind, when once it was organised and working regularly, would make a great deal of difference in the relations between England and India and the Far East.

Imperial Airways would be the first to admit that practically everywhere they landed the R.A.F. had given them the most valuable help. The greater part of the route had been regularly flown over by Service machines during the past four years.

Sir Samuel Hoare said that he had been greatly impressed with the efficiency and usefulness of the work of the R.A.F. on the N.W. Frontier of India. He had visited all the Units on the Frontier and he had found that political and military personages were agreed that the R.A.F. Units in India were highly efficient and were taking a valuable part in the defence of the N.W. Frontier.

To Sir Samuel and Lady Maud Hoare one tenders the congratulations of all concerned with British Aviation on their happy return from a journey which, if not beset with perils, was at any rate infested with rather more than sporting risks. Few people in their circumstances, endowed with wealth, social and political power, and with a family of charming children, would risk their lives merely because they considered that their duty was to set a good example to the travelling public. For volunteering to do that duty, and for doing it so effectively, they deserve the sincere thanks of the aeronautical community.—C. G. G.

A Dame Commander of the British Empire.

His Majesty the King has approved the appointment of the Lady Maud Hoare to be a Dame Commander of the Order of the British Empire.

The *Court Circular* of Feb. 19 states:—

The Right Hon. Sir Samuel Hoare, Bt., M.P. (Secretary of State for Air), and the Lady Maud Hoare had the honour of being invited to Luncheon with The King and Queen to-day.

His Majesty invested the Lady Maud Hoare with the Insignia of a Dame Commander of the Most Excellent Order of the British Empire (Civil Division).

A Thanksgiving Celebration.

On Wednesday next, Mar. 2, the Royal Aeronautical Society, the Royal Aero Club, and the Society of British Aircraft Constructors will give a Banquet at the Savoy Hotel to the Right Hon. Sir Samuel Hoare, Bart., C.M.G., M.P., Secretary of State for Air, and the Lady Maud Hoare, to welcome them on their return from India.

The Lord Thomson of Cardington, Chairman of the Royal Aero Club, will be in the Chair.

The price of tickets is £1 1s. each, exclusive of wines. Members may bring guests, including ladies. Applications for tickets from Members of all three above Societies should be made at once to the Secretary of the Royal Aero Club, 3, Clifford Street, London, W.1.



THE BIG AND LITTLE OF IT.—The De Havilland Hercules (Jupiters), a Vickers Victoria (Napiers), the two D.H. Moths (Cirrus), Sir Samuel and Lady Maud Hoare, and Messrs. Stack and Leete, at Karachi.

*Hercules or
Moths —
the best in the
World*



".....BRITISH PILOTS AND BRITISH MACHINES, WHETHER THEY BE PILOTS OF BIG OR SMALL MACHINES, WHETHER THEY BE 'HERCULES' OR 'MOTHS,' ARE THE BEST IN THE WORLD."

Thus said Sir Samuel Hoare, the Secretary of State for Air, in a message to the "DAILY MAIL," upon the completion of his flight from London to Delhi and back to Cairo—10,000 miles—on a "HERCULES" Air Liner, the whole journey being carried out to schedule.

The DE HAVILLAND range of aircraft types includes machines for all purposes ranging from the "MOTH" Two-seater Light Aeroplane to the "HERCULES," the latest and most efficient three-engined Air Liner in the World. Whenever aeroplanes are required for practical purposes—where reliability, good performance and low maintenance costs are factors of importance—the ultimate choice falls on DE HAVILLAND AIRCRAFT.

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THE ROYAL AIR FORCE.

The London Gazette.

Feb. 15.

GENERAL DUTIES BRANCH.—The following Plt. Offs. are promoted to the rank of Flg. Off.:—R. Matheson (Dec. 31, 1926); A. E. Hill (Jan. 15).

Air Commodore E. L. Gerrard, C.M.G., D.S.O., is placed on half-pay, Scale A (Feb. 8); Flg. Off. F. W. L. C. Beaumont is restored to full pay from half-pay (Feb. 7); Flg. Off. W. G. Stafford, M.C., D.C.M., is placed on the retired list (Feb. 5); Flg. Off. R. H. S. Mealing is transferred to the Reserve, Class A (Feb. 16).

The following relinquish their temp. comms. on return to Army duty:—Flg. Off. (hon. Flt. Lt.) K. M. Murray (Capt., P.W. Vols.) (Nov. 12, 1926); Flg. Off. M. H. FitzGerald (Lt., E. Yorks Regt.) (Jan. 1).

The S.S. comn. of Plt. Off. on probation G. P. T. Gibbons is terminated on cessation of duty (Feb. 16).

STORES BRANCH.—Wing Cdr. F. A. J. B. Wiseman, O.B.E., is transferred to the Reserve, Class C (Feb. 17).

ACCOUNTANT BRANCH.—Flg. Off. W. R. Donkin is granted a perm. comn. in this rank (Feb. 16).

CHAPLAINS' BRANCH.—The Rev. M. J. Eland resigns his S.S. comn. and is appointed an honorary chaplain to the R.A.F. (Feb. 15).

RESERVE OF AIR FORCE OFFICERS.—The following are granted comms. in the General Duties Branch, Special Reserve, as Plt. Offs. on probation (Feb. 15):—F. Davison, J. Sillery, W. Hislop. The following Flg. Offs. relinquish their comms. on completion of service:—W. Allen (Feb. 15); O. E. Sharpe (Feb. 16).

Appointments.

Week ending Feb. 21.

GENERAL DUTIES BRANCH.—Wing Commanders F. K. Haskins, D.S.C., to No. 4 F.T.S., Egypt, pending taking over command, 3/2. D. S. K. Crosbie, O.B.E., to Superintendent of R.A.F. Reserve, Northolt, for duty as Superintendent, 3/2.

Flight Lieutenants W. E. Somervell, A.F.C., to No. 12 Sqn., Andover, 24/2. A. H. Goldie, to No. 4 F.T.S., Egypt, 3/2. O. R. Cayford, D.F.C., to No. 47 Sqn., Egypt, 1/2. A. J. E. Bloomfield, D.F.C., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 20/1. G. S. Taylor, to H.Q., Egypt, 28/1.

Flying Officers J. W. New and Y. W. Burnett, to No. 47 Sqn., Egypt, 2/1. W. A. Cooke, to No. 14 Sqn., Palestine, 4/2. J. H. Powle, to Aircraft Depot, India, instead of to No. 20 Sqn., 11/12. C. A. Bell, to Aircraft Depot, India, instead of to No. 31 Sqn., 7/12. R. D. Adams, to Aircraft Depot, India, instead of to No. 31 Sqn., 11/12. G. B. Collett, to Aircraft Depot, India, instead of to No. 5 Sqn., 11/12. E. G. H. Russell-Stracey, to No. 20 Sqn., India, instead of to Aircraft Depot, 7/12. V. Rees, to Home Aircraft Depot, Henlow, 31/1. J. W. Hutchins, to H.M.S. *Argus*, 26/1. H. D. Wardle, to No. 29 Sqn., Duxford, 14/2. F. W. L. C. Beaumont, to No. 26 Sqn., Egypt, 7/2. A. E. Haes, to R.A.F. Depot, Uxbridge, 14/2.

Pilot Officers A. W. L. C. Allen, to R.A.F. Depot, Uxbridge, 14/2. J. C. Lewis, to Aircraft Depot, India, instead of to No. 28 Sqn., 11/12.

MEDICAL BRANCH.—Flying Officer H. Penman, M.B., to Electrical and Wireless School, Flowerdown, 22/2. Flying Officer (Dental) W. D. Gaylor, to H.Q., Halton, on appointment to a Temp. Comn., 5/2.

STORES BRANCH.—Squadron Leader W. B. Cushion, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 20/1.

Flight Lieutenants A. G. Knight, M.B.E., to No. 23 Group H.Q., Grantham, 9/2. H. J. Barham, to H.M.S. *Eagle*, 8/2. J. Hobbs, to Aircraft Depot, India, instead of to Aircraft Depot, 11/12.

Flying Officers F. C. C. B. Hichens, to No. 31 Sqn., India, 13/12. M. W. Key, to No. 28 Sqn., India, 13/12. B. W. Hemley, to No. 1 Wing H.Q., India, instead of to No. 5 Sqn., 11/12.

Pilot Officers P. J. Mole, to No. 20 Sqn., India, instead of to Aircraft Depot, 7/12. J. E. Welman, to Aircraft Depot, India, instead of to No. 20 Sqn., as previously notified, 7/12.

ACCOUNTANT BRANCH.—Flying Officer R. C. Clayton, to H.Q., Egypt, 22/1.

A Royal Investiture.

His Majesty the King held an Investiture at Buckingham Palace on Feb. 15.

Among those in attendance upon His Majesty was Air Marshal Sir John Salmond, R.A.F. (Principal Air Aide-de-Camp).

Among those present was Group Captain P. F. M. Fellowes, R.A.F. (Aide-de-Camp in Waiting).

The following officers of the R.A.F. were among those introduced into the presence of the Sovereign when the King invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:

The Most Excellent Order of the British Empire: Military Division.—(Officer), Flt. Lt. Albert Fletcher, R.A.F.; (Member), Flt. Lt. Robert Greenlaw, R.A.F.

His Majesty then conferred decorations as follows:—*The Royal Red Cross.*—(Member), Miss Mary Campbell, late Princess Mary's R.A.F. Nursing Service.

The Military Cross.—Flt. Lt. Sturley Simpson, R.A.F. *The Distinguished Flying Cross.*—Sq. Ldr. Robert Saundby, R.A.F., Flt. Lt. Sydney Pope, R.A.F., and Flt. Lt. Elmer Roberts, R.A.F.

The Air Force Cross.—Flt. Lt. Mathew Dick, R.A.F. Capt. R. Goodman-Crouch was invested with the insignia of the Most Excellent Order of the British Empire at the Royal Investiture on Feb. 17.

A Kurdistan Award.

The notification of the award of the Military Cross to Flt. Lt. S. P. Simpson in May, 1926, has not previously appeared in THE AEROPLANE. The omission is hereby rectified.

Extract from *The London Gazette*, May 14, 1926:—

War Office, 14th May, 1926.
The King has been graciously pleased to approve of the award of the Military Cross to Flight Lieutenant Sturley Philip Simpson, No. 6 Armoured Car Company, Royal Air Force, in recognition of valuable and distinguished services rendered in connection with operations in Kurdistan during the period July to October, 1924.

A Soudan Award.

The King has approved of the award of the Air Force Cross to Flt. Lt. Richard Llewellyn Crofton, M.B.E., Royal Air Force, in recognition of valuable flying services rendered in the Sudan and in connection with the operations in the Nuba Mountains Province of the Sudan, 1926.

[There is a certain oddity about the award of the Air Force Cross for flying in the course of military operations. One would imagine that such flying would be considered as "flying in the face of the enemy," even though the said enemy might have no aircraft nor anti-aircraft weapons, and so would be due qualification for the Distinguished Flying Cross.—Ed.]

The R.A.F. Display at Delhi.

The Delhi correspondent of *The Times*, in a message dated Feb. 21, states:—

The air display on the new Delhi racecourse to-day was a great success, without a single flaw even in the observance of the timetable. The spectators were numbered in thousands, and every motor and horsed vehicle in Delhi seemed to be employed to the utmost capacity in carrying them thither, and masses of others trudged to the scene on foot.

The Legislative Assembly did not adjourn, as some members wanted, but for the first time the expedient of pairing was utilised, with the result that whole stretches of benches were left empty. Among those pairing was Pandit Motilal Nehru, the Swarajist leader, notwithstanding that the Steel Protection Bill was under debate. The Viceroy and Lady Irwin came to the display with a large party from the Viceroy's Lodge.

Over 80 aeroplanes assembled, including all the R.A.F. squadrons in India, less two machines each. Their assembly at Delhi formed part of the season's training; and all arrived, some from great distances, punctually to date and hour. Their joint evolutions to-day



GETTING IT OUT OF THE SCRUM.—Joiner Husson disputing Flg. Off. O'Malley's possession of the ball. Coming to the rescue is Sq. Ldr. Russell, and in the foreground Surg. Lt. Osborne and the backs of E. R. A. Harding (12) and Lt. Harvey (11).

Blackburn

BLUEBIRD



EXTRACTS FROM A PILOT'S DIARY RETURNING FROM A PLEASURE CRUISE ON THE CONTINENT

Dec. 12th. Heavy mist through which we could just see about half way across the aerodrome. We decided to push on to Beauvais where the fog was reported to be less dense. had we been in any other machine than the BLUEBIRD I doubt whether we should have done so. Its low stalling speed, combined with the comfortable cockpit and confidence given by the occupants sitting side by side & being able to talk to each other, made the world of difference, & tended to make one forget the usual uneasiness one feels when flying under such conditions.

Arrived Abbeville 14.00. Having decided to stop the night we picketed down the BLUEBIRD & left it in the open with a sheet over the engine & cockpit.

The GENET started up without the slightest trouble notwithstanding the fact that it had stood out all night. We left Abbeville 11.35 after putting 4 gallons of "B P" petrol into the tank to make certain of reaching Lymprie without running short.

We found Cape Grisnez with clouds at 100 ft & St. Inglevert getting clearer; we circled around the aerodrome & then made a course across the Channel.

We reached Folkestone twenty minutes later. During the whole trip not a single thing was done to the machine or engine excepting in the latter case, to clean the plugs.

It was a very enjoyable trip & we are very keen on repeating it in fine weather.

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presented part of the combined movements which form the apex of the season's training programme.

The Display began with an inter-squadron relay race by Army co-operation squadrons of Bristol Fighters, followed by the picking-up of messages and low bombing by De Havilland machines. Siddeley Siskins and the two De Havilland Moths of Mr. Leete and Captain Stack, which three days ago arrived from England, then gave a display of aerobatics to demonstrate the manœuvring capacity of these types.

The Viceroy directed air drill by wireless telephone. Two squadrons carried out combined manœuvres, and after other events six squadrons flew past with perfect precision.

The Viceroy and others warmly congratulated Group Captain J. A. Chamier, the organizer of the Display and Chief Air Staff Officer in India, who was also largely responsible for the training and efficiency of the units during the past few years, and Flight Lieutenant J. L. Kirby, secretary of the Display. The gross takings for R.A.F. charities were approximately 20,000 rupees [about £1,500].

Much humour was caused by the great troop carrier, the Vickers Victoria, lumbering by with the two little Moths buzzing round it. Nearly 100 members of the Legislative Assembly will fly in the Vickers Victoria to-morrow. Mr. Leete and Captain Stack by invitation alighted to-day in front of the grand stand, and were presented to the Viceroy that he might congratulate them on their flight from England.

The Reserve of Air Force Officers.

The Air Ministry announces that increases in the Pilots' Section of the Reserve of Air Force Officers are necessary as a result of the gradual expansion of the R.A.F., and the scheme which was experimentally instituted in 1925 to enable the Air Force to feed its reserve by drawing upon the younger generation who have had no flying experience, is to be extended.

A large number of openings, therefore, present themselves now to young men to be trained as pilots *ab initio*. At least 50 candidates will be taken by the Air Ministry if the necessary number of the right type are forthcoming.

The training will be carried out at the De Havilland Aircraft Co.'s School at Edgware, at the Bristol Aeroplane Co.'s School at Bristol, and probably also at the Beardmore Aviation School at Renfrew, near Glasgow.

Applicants must be of good education and physique, but need not have any previous flying experience. They must be over 18 and under 25 years of age, though consideration may be given in certain circumstances to suitable applicants who are slightly over the latter age.

Application forms and further details can be obtained by applying to the Secretary (S.7 Reserves), Air Ministry, Adastral House, Kingsway, London, W.C.2.

The History of Eastchurch.

"The History of the Eastchurch Air Station, Sheppey, 1909-1926." 9d. net.

Eastchurch is one of the most interesting Air Stations in Great Britain because it was one of the first places in this country to be concerned with Aviation. This little book will therefore not only be of interest to past and present members of the Services who have been stationed there, but to all those who are interested in the early days of flying and the experiments of the pioneers.

Any profits on the sale of the book will go to the R.A.F. Memorial Fund. The book may be had from the Editorial Office of THE AEROPLANE, 175, Piccadilly, or from Flt. Lt. Empson, R.A.F., Eastchurch, price 1rd. post free.

The Ill-Fated Furious.

A Reuter message in *The Times* of Feb. 7 states:—

Three naval ratings were seriously injured in an accident on board H.M. aircraft-carrier *Furious* at Gibraltar on Feb. 4. Two deck-landing aeroplanes were preparing for a flight from her deck when the hindmost, for some unexplained reason, started off unexpectedly and ran into the rear of the foremost and wrecked it. Neither pilot was hurt.

Sea Warfare.

One learns by a circuitous route of a regrettable quarrel which took place in a certain Naval harbour recently. According to the account, possibly garbled, which has been received, the Blackburn Iris and a Supermarine Southampton were moored in rather too close proximity. The Iris being affected more by the tide and less by the wind than the Southampton, the two boats slewed round in manœuvring for equilibrium as between tide and wind, and eventually came to blows. Before they could be separated they had fought a considerable duel, and had done quite a lot of damage to each other.

One is very sorry to hear of this affair, because the Blackburn and Supermarine firms as such are on the most amicable terms and it is a pity that their progeny should be unable to live peaceably together.

R.A.F. SPORTS AND PASTIMES.

The Royal Navy versus The Royal Air Force.

The Navy beat the R.A.F. at Twickenham on Feb. 19, by a goal and a try (8 points) to a try (3 points) H.R.H. Prince George was amongst the spectators.

The day was good, the ground was in excellent condition and the ball was dry but the Rugby was perfectly appalling. The handling was equally bad on both sides and there was a lot of wild passing and a certain amount of loose hacking. The tackling was good on the whole but frequently too high. Both sides made up in courage and energy what they lacked in skill and perception.

The R.A.F. forwards were very disappointing. In actual shoving powers they had a slight advantage over the Navy, and they were quicker to break up but they lost the ball in every scrum through sheer inability to hook and heel. Individually they showed flashes of brilliance in the loose, but as a pack they were slow and unwieldy and they did not last the game. Sq. Ldr. Russell strove manfully to get a ball which never came his way and was a tower of strength in defence in spite of the unceasing warfare waged against him by his opposite number, Joiner Husson.

With the Navy getting the ball about nine times out of ten, Plt. Off. Norwood, who played so well against Bath, did not have much of a show, and the three-quarters spent most of their time tackling the Navy threes, which they did with great effect. When the Air Force did get the ball, usually from a line-out, the three-quarters showed fairly good form. AC. Massey in his efforts to run straight and make ground too often failed to pass before he was tackled. But he is full of the right ideas and should make a fine player when he has had more experience.

At full-back Flg. Off. Hale-Munro excelled himself in the face of continual attack. He stopped rush after rush and



THE R.A.F. TEAM.—Left to right (standing): Flg. Off. O'Malley, Flg. Off. Harvey, Flg. Off. Beamish, Cpl. Christie, AC. Massey, Flg. Off. Franks, Plt. Off. Norwood, Flg. Off. Hale-Munro, Flt. Lt. Elmhirst (team secretary). (Sitting): Plt. Off. Hodder, Flt. Lt. Chick, Flt. Lt. Bryson, Sq. Ldr. Russell, Flt. Lt. Maxwell, Flg. Off. Chichester, Flt. Lt. Turner.

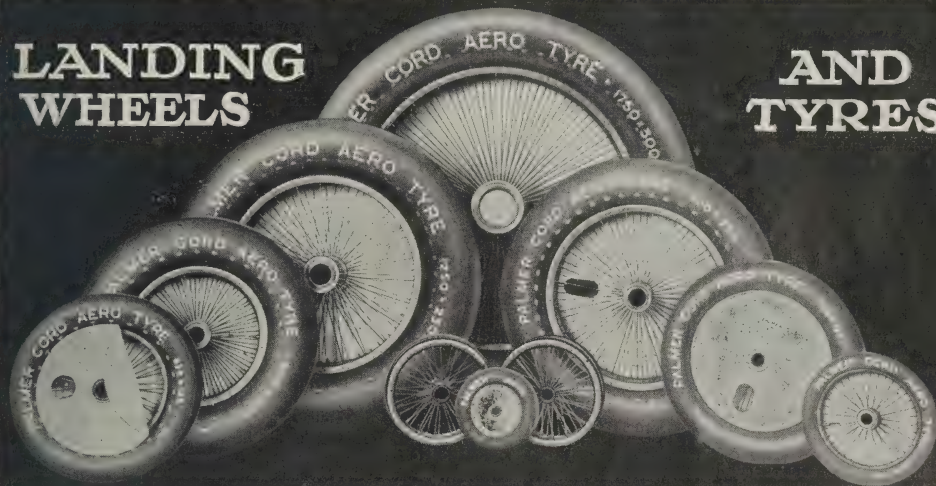


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375 x 55	168	111.12	25.4	Central	700 x 100	112	150.	38.09	Central	1000 x 150	210	185.	60.32	Central
300 x 60	16	111.12	25.4	Central	"	176	178.	44.45	Central	"	148	185.	55.	Central
450 x 60	30	89.	31.75	Central	"	179	178.	55.	132/46	1000 x 180	149	185.	55.	Central
"	172	130.	38.09	Central	650 x 125	119	178.	55.	132/46	"	155	220.	66.67	Central
575 x 60	21	160.	28.	Central	"	147	178.	55.	Central	"	166	185.	55.	125/60
"	80	150.	38.09	104/46	"	188	120.	34.92	Central	900 x 230	107	185.	55.	Central
"	86	120.	34.92	Central	750 x 125	77	178.	44.45	132/46	"	108	185.	55.	125/60
"	90	150.	38.09	Central	"	92	185.	55.	135/50	"	128	220.	66.67	Central
650 x 65	78	178.	44.45	132/46	"	95	185.	55.	Central	"	137	250.	80.	Central
"	79	178.	44.45	Central	"	99	178.	38.89	132/46	"	157	185.	80.	Central
"	100	178.	38.09	132/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
"	101	178.	31.75	132/46	"	176	178.	44.45	Central	1100 x 220	134	220.	66.67	Central
600 x 75	21	160.	28.	Central	"	179	178.	55.	132/46	"	136	250.	80.	Central
"	180	150.	38.09	104/46	800 x 150	161*	185.	55.	135/50	"	192	185.	60.32	Central
"	186	120.	34.92	Central	"	162*	185.	55.	Central	975 x 225	194	185.	55.	125/60
"	190	150.	38.09	Central	"	163*	185.	66.67	135/50	"	154	304.8	101.6	Central
700 x 75	78	178.	44.45	132/46	"	169†	185.	55.	135/50	1250 x 250	133	250.	80.	Central
"	79	178.	44.45	Central	"	177	185.	55.	135/50	"	154	304.8	101.6	Central
"	100	178.	38.09	132/46	"	183	185.	55.	Central	1500 x 300	115	304.8	101.6	Central
"	101	178.	31.75	132/46	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
700 x 100	77	178.	44.45	132/46	1000 x 150	167	185.	55.	125/60	1750 x 300	139	400.	152.4	Central
"	92	185.	55.	135/50	"	174	250.	80.	Central	"	191	350.	150.3	Central
"	95	185.	55.	Central	"	182	185.	55.	Central	1750 x 350	193	400.	125.	Central
"	99	178.	38.89	132/46	"	187	220.	66.67	Central					
					"	201	185.	60.32	125/60					

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kicked a good length. Even after a nasty injury late in the second half he went back and pulled his weight in the team.

Sub-Lieut. Sellar, the Navy and England full-back, was a thorn in the flesh of the Air Force who must have seemed easy prey to him after the brilliant and sustained opposition of the Irish team on the previous Saturday.

The R.A.F. started well. Less than ten minutes from the kick-off Russell had the ball out to Bryson from a scrum on the right wing. Bryson dodged a couple of sailors and passed in to Hodder who made ground and passed back to Bryson to score. The whole movement was perfect. The goal-kick failed.

The Navy found touch from the kick-off and brought the game into Air Force ground. A great battle followed the line-out in the course of which Maxwell threw a sailor over each shoulder in a nonchalant manner. O'Malley got the ball and kicked it down the field. Sellar fielded the ball and was executing that Charleston movement which enables him to bring his starboard foot into action (he cannot kick with his port foot yet and when he can the Air Force will have to put another couple of tons into the scrum), when Chick came cruising along and rammed him. Maxwell came up in support but was tackled as he kicked and a Navy man fielded the ball and dashed down the left wing. Harvey sank him near the flag.

There was a fierce battle in the corner before Russell cleared from a mark. Norwood broke away from the line-out but was unsupported. A good Air Force forward rush followed a "Russell" tackle and they looked more like scoring than they ever did again in the whole game. Unfortunately somebody either tried to drop a goal or punted ahead too hard and the Navy touched down.

The play was very even at this point. An Air Force three-quarter attack broke down on the left wing, Harvey getting a hopeless pass. A Navy attack was stopped by Hale-Munro whose long kick fell a foot short of touch. Bryson broke away again but passed forward after making a lot of ground. The Air Force were penalised twice for off-side and the Navy gained a lot of ground. Off-side can be an expensive pastime.

The Navy got right back on the Air Force line again. Chick and Franks were hauled out of the scrum in defence, a state of emergency having arisen. The Air Force fought their way back to the halfway line foot by foot, O'Malley, Franks and Beamish putting in some good work. Russell and Bryson started another good passing movement but Sellar saved again.

In the second half the Navy started in great style and the R.A.F. had hard work to keep them out. There were nearly ten minutes of scrumming on the Air Force line while the R.A.F. supporters turned slowly black in the face with anxiety. The Air Force ended it by touching down, and, while they and their supporters recovered their breath, the Navy got the ball from the drop-out and Lee scored a beauty. The goal-kick failed.

The R.A.F. had hardly recovered from this before the Navy were at it again. This time, Wood (I think it was) had beaten his opposite wing men when Bryson came right across and crashed him into touch. Maxwell, Beamish and Chick used their feet to some purpose in a forward rush which threatened to overwhelm the Navy, but Sellar gathered and cleared. Sailors don't care.

The Navy were playing very well together at this stage and started one attack after another. The Air Force backs were hard pressed. Once Massey was picked up and thrown away but got up again still holding the ball. Hale-Munro was at his best, and broke through twice on his own before he was laid out. Harvey made a great effort which failed. Husson was penalised for obstruction after a series of scrums in which a little heeling by the Air Force might have saved the situation at the eleventh hour.

The Navy forwards, who were staying the course better than the Air Force forwards, came into action and broke through leaving their three-quarters almost a clear field for a beautiful try which was actually scored by Crick, one of the forwards. Sellar kicked a goal.

The last ten minutes was a hard fight, but there was no more scoring.—C. M. MCA.

The team were:—

ROYAL NAVY.—Sub-Lieut. K. Sellar, (R.N.C., Greenwich), back; Sub-Lieut. N. Kennedy (H.M.S. Dryad), Sub-Lieut. T. S. Lee (H.M.S. Dolphin), Sub-Lieut. G. M. Sladen (H.M.S. Dolphin), and Lieut. W. H. Wood (H.M.S. Champion), three-quarter backs; Lieut. G. R. Cook (R.N.E. College, Keyham) and Joiner T. Husson (H.M.S. Maidstone), half-backs; A.B. W. Paddon (H.M.S. Woolwich), Master-at-Arms W. G. E. Luddington (H.M.S. Impregnable), Lieut. T. G. P. Crick (H.M.S. Victory), Lieut. R. C. Harry (H.M.S. Impregnable), E.R.A. E. H. Harding (H.M.S. Vivid), Sub-Lieut. J. W. Linton (H.M.S. Excellent), Lieut.-Cdr. W. C. T. Eyres (R.N.C., Greenwich) (captain), and Surgeon-Lieut. L. B. Osborne (H.M.S. Vivid), forwards.

ROYAL AIR FORCE.—Flg. Off. T. A. Hale-Munro (Northolt), back; Flt. Lt. O. C. Bryson (Cranwell), Flt. Off. F. S. Hodder (Andover), AC. Massey (Shrewsbury), and Flg. Off. G. D. Harvey (Bircham Newton), three-quarter backs; Flt. Off. J. Norwood (Kenley), and Sq. Ldr. J. C. B. Russell (Air Ministry) (captain), half-backs; Flt. Lt. G. H. Maxwell (Flowerdown), Flt. Lt. J. S. Chick (Felixstowe), Flg. Off. C. J. S. O'Malley (Halton), Cpl. M. G. Christie (Shrewsbury), Flg. Off. F. V. Beamish (Sealand), Flt. Lt. E. P. Turner (Ulster), Flg. Off. P. G. Chichester (Manston), and Flg. Off. J. G. Franks (Leuchars), forwards.

ZURICH-CAPE TOWN.

On Feb. 21, M. W. Mittelholzer arrived at Cape Town after having flown from Zürich, a distance of approximately 12,500 miles, in 100 flying hours.

He left Zürich on Dec. 7 on a Dornier Mercur seaplane (450 h.p. B.M.W.VI engine) with Dr. Arnold Heim, a geologist, and M. Gouzy, a Geneva journalist, to carry out an exploration of the Congo basin, the Equatorial highlands and the Kenya and Kilimanjaro ranges. He crossed the Alps and flew via Naples, Athens, Cairo, the Nile valley, the great Lakes, the Zambesi, and the East Coast of Africa, to Cape Town.

At Jinja, in Uganda, the two passengers were left behind as it was found that the Mercur had difficulty in getting off at high altitudes.

DISREGARDING SCORING BY POINTS AS BEING MERELY ACADEMIC, THE R.A.F. BEAT THE R.N. BY 4½ PAIRS OF SHORTS TO ONE SHIRT.



IN THE FIRST HALF, AFTER A SCRUMMAGE, IN SQUARE 3 (AS THE B.B.C. MIGHT SAY) THE R.A.F. GOT THEIR FIRST.



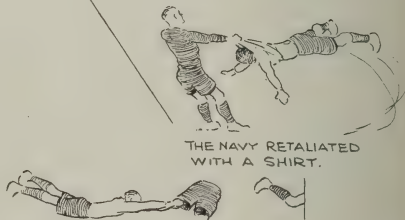
AFTER HALF TIME THE R.A.F. GOT TWO MORE IN QUICK SUCCESSION.



FINALLY THE AIRMEN GOT HALF A STARBOARD LEG. THIS MATELOT WAS ALLEGED TO HAVE BEEN WEARING BRACES.



JUST BEFORE HALF TIME THE AIR FORCE GOT THEIR SECOND, BUT



THE NAVY RETALIATED WITH A SHIRT.

WE SHALL SOON BE HAVING ANOTHER "HANDS OFF" MOVEMENT.



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AIR AFFAIRS IN PARLIAMENT.

EIGHT YEARS OF RESEARCH.

In the House of Commons on Feb. 16, in reply to CAPT. GARRO-JONES, the UNDER-SECRETARY OF STATE FOR AIR said that the total sum expended on scientific research and technical development as detailed in Appendix II of the current Air Estimates from Apr. 1, 1919, to Mar. 31, 1927, including expenditure still to be incurred this financial year, was approximately £8,500,000.

RE-FUELLING IN THE AIR.

In the House of Commons on Feb. 16, in reply to a question by COL. DAV, the UNDER-SECRETARY OF STATE FOR AIR said that the practicability of re-fuelling aircraft in mid-air had been demonstrated by successful tests at the Royal Aircraft Establishment, Farnborough, some years ago. He did not think that the need for a system of aviation spirit pumps had yet arisen.

LOW FLYING OVER TOWNS.

In the House of Commons on Feb. 16, in reply to a question by BRIG.-GEN. WARNER, the UNDER-SECRETARY OF STATE FOR AIR said that orders were already in force on the subject of low flying over towns or thickly populated districts and in particular forbidding pilots to fly or manoeuvre their machines in any manner likely to cause accident or annoyance to any person or persons or damage to live stock or property. No further orders on the subject were considered necessary, but if persons who suffered annoyance from low flying would note the number of the aeroplane with the date, hour and locality of the occurrence to the Secretary, Air Ministry, full inquiry would be made and action taken in the event of any breach in the regulations.

THE COST OF HENDON.

In the House of Commons on Feb. 16, in reply to a question by SIR FREDERIC WISE, the UNDER-SECRETARY OF STATE FOR AIR said that the price paid for Hendon Aerodrome could not yet be given, as it would depend upon the prices realised for the surplus property included in the purchase, but that the final cost of the 300 acres had been estimated, however, that the final cost of the 300 acres together with buildings valued at £100,000 would work out at approximately £300,000. [This strikes one as being remarkably cheap. As a building estate the land alone would be worth a good deal more money.—C. G.]

AIRSHIP GAS CONTAINERS.

In the House of Commons, on Feb. 16, SIR F. HALL asked the SECRETARY OF STATE FOR AIR whether, seeing that the gas containers for the new airship R.100 are being made in Germany, he will say whether the material for this purpose can, at the present time, be manufactured in this country; and, if not, what is proposed to be done to remedy this state of things?

SIR P. SASSOON: The Air Ministry have been informed by a firm in this country that the material can now be manufactured through their agency in Great Britain, and this statement is now under investigation. Research is being carried out with a view to providing a synthetic substitute for skin-covered fabric.

SIR F. HALL: Do I understand then that the gas containers are not being made in Germany? Do I understand, on the other hand, that they are being manufactured in this country?

SIR P. SASSOON: The firm to which I referred are at present undertaking experiments for manufacture.

SIR F. HALL: Do I understand we are left at the mercy of foreign countries for the manufacture of one of the most vital parts of the airships of this country?

SIR P. SASSOON: My answer expressed the hope that it would not be so.

SIR F. HALL: There is no satisfaction in that.

On Feb. 17, LT.-CDR. KENWORTHY asked whether the gas containers for the British airship R.100 were being manufactured in this country and, if not, where. MAJOR COPE replied that the gas containers were being manufactured by the B. G. Textilwerke, G.M.B.H., of Berlin.

[These seem to be singularly useless questions. Surely the first thing to be done is to get the airships in the air, and if German firms can supply material of proven effectiveness then we must use it without waiting while English firms make leisurely experiments after the usual English fashion.—C. G.]

THE SCHNEIDER TROPHY.

In the House of Commons on Feb. 17, in reply to a question by LT.-CDR. KENWORTHY, MAJOR COPE said that entries for the Schneider Trophy were made by the Royal Aero Club and that at a meeting held at the Royal Aero Club on Mar. 9, 1926, it had been unanimously decided that it was inexpedient for the Club to make a challenge for the race that year. In view of that decision the need for any steps on the part of the Air Ministry had not arisen.

AIRCRAFT FROM NAVAL DOCKYARDS.

In the House of Commons on Feb. 17, in reply to MAJOR HORE-BELUSH, who was asked a question about the construction of H.M. Dockyards, MAJOR COPE said that this question had frequently been examined by the Air Ministry who, however, remained of the opinion that the proper policy was to rely upon the Aircraft Industry for construction.

R.A.F. TRAINING.

In the House of Commons on Feb. 17, in reply to a question by BRIG.-GEN. BROOKE, MAJOR COPE said that everything possible was being done to limit the expense of the Cadet College at Cranwell and the Apprentices' School at Halton to the minimum compatible with efficient training. SIR F. HALL asked why it was necessary to employ 176 officers and 960 men to supervise the training of 2,000 boys at Halton, while at Beachley 18 officers and 200 men were found sufficient to look after 980 boys. Also was the Secretary of State for Air aware that the cost of training a boy at the latter place was £115 a year compared with £95 at Halton.

MAJOR COPE said that the number of apprentices at present under instruction at Halton was 2,487. This number would be gradually increased to 3,000. The authorised establishment of officers and airmen for the instruction of 3,000 apprentices and for the upkeep and administration of the station was 88 officers and 819 airmen, but the forthcoming Estimates would show that the staff was less than these numbers.

By the courtesy of the War Office, the Army establishment at

Beachley had lately been visited by representatives of the Air Ministry, and the Secretary of State for Air was satisfied that the difference in numbers employed and in the cost of the two establishments was due to the greater complexity of the equipment at Halton and of the training required by the aircraft apprentices for whom a large amount of individual instruction was essential to fit them for their future responsibilities for the safety of aircraft in flight.

COMMERCIAL AIRCRAFT IN THE UNITED STATES.

The following table, extracted from *Aviation*, shows the production of purely commercial aircraft during 1926 and the number of commercial aircraft in use on Jan. 1, 1927:—

Name of Company.	Type.	No in use Jan. 1, 1927.	No Manufactured in 1926.
Advance Aircraft Co.	Waco	356	200
Lincoln Standard Aircraft Co.	—	395	79
Travel Air Inc.	Travel Air	56	64
Douglas Aeroplane Co.	Douglas Mail Plane	60	60
Alexander Aircraft Co.	Eaglecock	40	50
Swallow Aircraft Co.	Swallow	85	40
	Ortolo	30	0
	Carrier Pigeon	10	10
Curtiss Aeroplane & Motor Co.	Lark	5	5
	Seagull	20	20
Woodson Engineering Co.	Woodson	6	14
Atlantic Aircraft Corp.	Cruiser	18	13
Pitcairn Aviation Co.	Fleetwing	6	12
Stinson Aircraft Corp.	Orowing	6	12
Ireland Aircraft	Detroit	10	10
	Meteor	10	10
Ryan Airline	Comet	10	10
E. M. Laird Airplane Co.	Ryan	6	6
American Eagle Aircraft Co.	Commercial	6	6
Kreider-Reisner Aircraft Co.	Eagle	6	6
Buhl Aircraft Co.	Midget	5	5
Cole Aircraft Co.	Airster	5	5
Irwin Aircraft Co.	Sport	4	4
Kentucky Airplane Co.	Meteorplane	7	4
Ford Motor Co.	Cardinal	2	4
Huff-Daland Airplanes Inc.	Ford	10	3
	Petrel	19	3
Yackey Aircraft Co.	Yackey Transport	4	3
Sikorsky Mfg. Co.	Cruiser	—	1
Montee Aircraft Co.	Sikorsky	5	2
Hess Aircraft Co.	Montee	—	2
Heath Airplane Co.	Blue Bird	—	2
	Tomboy	—	2
Waterhouse Aircraft Inc.	Parasol	3	2
	Favorite	—	2
Fairchild Airplane Mfg. Co.	Cruiser	—	2
Wright Aeronautical Corp.	Romair	—	2
Driggs Aircraft Co.	Fairchild	1	1
Eberhart Steel Products Co.	Bellanca	1	1
Edo Aircraft Corp.	Dart	1	1
G. Elias & Bro., Inc.	Commercial	1	1
Kirkham Products Co.	Malola	1	1
Johnson Aircraft Corp.	Air Mobile	2	1
Western Airplane Co.	Twin-60	1	1
	Booney Gull	—	1
	King Bird	—	1
		1,200	636

In the compilation of this table *Aviation* has endeavoured to include only newly-designed aircraft to the exclusion of all other types, and where spaces have been left figures have not been found available.

The figure of 636 newly-designed aircraft constructed during 1926 seems very formidable.

The Douglas Mail Plane, the Curtiss Carrier Pigeon, the Ford Commercial Monoplane, a number of Fokker three-engined monoplanes, all of which are of the bigger commercial type of 400 h.p. and over, represent less than 20 per cent of the whole.

The production figures of the Waco 9 is remarkable. This machine is a light three-seat biplane fitted with a 90 h.p. Curtiss OK.5 engine, and sells for \$2,600 (approximately £530).

The Lincoln Standard is a five-seat biplane fitted with the 180 h.p. Hispano-Suiza engine. The Travel Air Eagle-rock and the Swallow are light three-seat biplanes, with the Curtiss OX.5 or C.6 engines, although some Travel Air and Swallow aircraft have been fitted with the 200 h.p. Wright Whirlwind engines for use on the smaller Contract Air Mail Routes.

MR. RICARDO ON PETROL ENGINE DEVELOPMENT.

On Tuesday, Mar. 1, Mr. H. R. Ricardo will read a paper on "Some Notes on Petrol Engine Development." Although the paper does not refer specifically to aero-engines it will deal with a number of subjects of direct interest in this connection, including supercharging and torque recoil.

The paper will be read in the Lecture Room of the Royal Society of Arts, John Street, Adelphi, at 7.45 p.m. It will be repeated at the Merchant Venturers' Technical College, Bristol, on Mar. 7, at 6.45 p.m., at the Royal Technical College, Glasgow, on Mar. 21, at 7.30 p.m., and at the Engineers' Club, Albert Square, Manchester, on Mar. 23, at 7 p.m.

Tickets to admit visitors to any of these meetings may be obtained from the Secretary, the Institution of Automobile Engineers, Watergate House, Adelphi, London, W.C.2.

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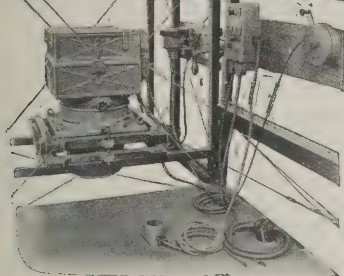
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CONCERNING WING-FLUTTER.

During the past few months the subject of "Wing Flutter" as a cause of certain flying accidents has become a matter of public discussion. That wing flutter is a very definite source of danger under certain conditions, and that it had been encountered in certain British Service aircraft during the past few years has long been known in technical circles but until the publication a week or two back of R. and M. No. 1041 (see *THE AEROPLANE*, Feb. 2), no evidence which was not of a confidential nature was available to identify this form of wing flutter with the type which was already known to have developed in certain foreign aircraft of a widely different type.

Although authentic information as to the exact nature of the trouble has now become available it is obvious that a good deal of misapprehension still exists as to the nature of this trouble. This is perhaps not altogether surprising. The factors which are involved in causing wing flutter are many and complex, the subject is one which can only be investigated and explained with any degree of completeness and quantitative accuracy by mathematical methods, and the mathematics involved are somewhat formidable.

AN AMBIGUOUS NAME.

The term wing flutter itself is one which might reasonably be applied to a large number of distinct types of wing vibration, and this has inevitably suggested in certain quarters that the wing flutter of to-day is in some degree analogous to the violent torsional movements—sometimes known as self-warping—which were found in quite a number of pre-War aeroplanes, and more recently, to a singularly virulent degree, in one of the 1922 Iford gliders.

SELF-WARPING NOT FLUTTER.

In fact the two phenomena are totally distinct. They differ entirely both in cause and in effect.

In the case of self-warping, the whole of each wing twists from the roots. Wings on opposite sides of the machine twist in the opposite sense, precisely as they would do were the control lever of a warping machine forcibly moved from side to side by the pilot. And in fact it is so moved, but by the air forces which cause the phenomenon and not by the pilot. The periodicity of the oscillations is relatively low—the time for the completion of one full cycle is to be measured in seconds. And the cause of the oscillation is to be found in the normal movement of the centre of pressure of the wings across the chord.

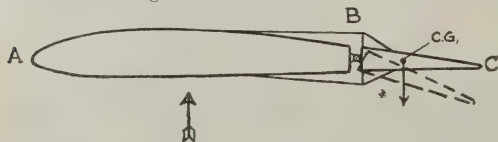
The modern type of wing flutter is not specifically a torsional oscillation of the wings though pretty certainly some torsional movement must occur. It is essentially a bending up and down of the wing-tip. The two sides of the wings do not oscillate in opposition. There seems no reason why the movements of the two sides should not be completely independent one of another. The evidence however is said to suggest that in fact the two wing tips oscillate together.

The movement is of rapid frequency—in the cases which have occurred in this country the frequency is round about 800 oscillations per minute. This frequency must depend largely upon the stiffness of the wing structure as a whole, and is higher in the case of a very stiff biplane structure than it would be for instance in a cantilever monoplane of similar span and total weight.

And finally it is due eventually to inertia forces on hinged trailing-edge flaps—such as normal ailerons. (A precisely similar phenomenon can occur, and has occurred on a tail plane. In this case elevators are the cause. At least one case is known where somewhat similar vibrations have occurred on a fin and rudder combination).

THE CAUSE OF WING FLUTTER.

Although, as has already been mentioned, the factors which determine whether flutter shall or shall not occur are many and complex, a fairly simple general explanation of the cause of flutter is possible. Let A B C be a section of an aeroplane wing, of which the part B C is an aileron or similar flap, hinged at B. Let the centre of gravity of the aileron lie behind the hinge as indicated.



If this wing be in steady flight the aileron is in equilibrium under the action of a number of forces. The weight of the aileron produces a moment about the hinge tending to increase the incidence of the aileron. This moment must be balanced by the combined effect of air forces on the aileron itself and the loads in the control wires.

Suppose that a force—caused say by a bump, a slight move of the elevators, or the like—accelerates the wing A B C in an upward direction. The aileron B C is coupled to the wing

only through the hinge, and through the control wires. If the control wires did not exist, the hinge would move bodily with the wing and apply a force to the ailerons at a point in front of the c.g. of that aileron. There would be a moment caused by the inertia of the aileron tending to increase the incidence of the aileron, and to move it towards the position shown by the dotted lines.

In practice this moment produces a load in the control wires. If these wires were completely rigid and there were no lost motion in the control system, the aileron would be constrained to move bodily with the wing. The wires actually are elastic and stretch under this load, there is lost motion in the system, consequently the aileron does not move bodily with the wing—it does lag behind the wing and its angle of incidence does increase.

This increase of aileron-angle leads in the usual way to an increased lift over this particular wing, which is an addition to the original force which set the wing in upward motion.

HOW FLUTTER IS PROVOKED.

Now consider what happens to the wing as a whole. The upward force which creates the original disturbance is a force which must be transmitted to the aeroplane as a whole through the wing structure, and it must increase the stresses in that wing structure to some extent. It must therefore increase the deflection of the structure—that is it must cause the wing itself to bend upwards.

If a load be applied suddenly to an elastic structure, the deflection produced is always momentarily greater than the steady deflection which the same load would cause if its application were continued. Therefore this wing-tip under the sudden load caused by a bump will deflect past the point of equilibrium and then will spring back. In other words the application of a "bump" load starts vibration of the wing-tip.

In the case imagined the tip starts to move upwards. All the time it is moving up the aileron will lag behind it because of its inertia and the moment which that inertia produces about the hinge. The displacement of the aileron gives an additional force tending to increase the upward movement. The wing finally reaches the limit of its deflection and begins to spring back.

Momentarily, however, the aileron continues its upward path and its angle of incidence therefore decreases. It finally starts to follow the wing downwards, but still lags behind the wing, and consequently once more takes up such a position that the air force on the aileron is helping the movement of the wing.

From this it can be seen that any aileron or other flap of this type, purely because of its inertia, always tends to take up such a position relative to a vibrating wing that the air forces on the aileron are in the correct direction to increase this vibration.

Under ordinary conditions the rigidity of control connections is so large, and the inertia of ailerons so small that the angular position of the aileron changes very little. If the aeroplane is flying at a normal speed with its wings at a normal angle of incidence, the change in the air forces on the aileron caused by this small change of angle is also small, both absolutely and in relation to the frictional and other forces which tend to damp out oscillation. As the speed is increased and the angle of incidence decreases, the change in air load caused by this lag of the ailerons becomes greater, and the damping becomes relatively smaller.

If such a state of affairs coincides with conditions in which resonance occurs between the natural frequency of oscillation of the whole wing system and of the periodicity of the alternating force caused by the ailerons, wing flutter is the result.

CONDITIONS WHICH DETERMINE WHETHER FLUTTER SHALL OCCUR.

The conditions under which resonance of this type will occur depend upon a large number of different characteristics of the aeroplane and its wing system. It can however be said that the stiffer the wing system to which the flaps are attached the higher will be the frequency of resonance, and the higher the air speed at which the change of air force on the ailerons will suffice to overcome frictional damping, etc.

Moreover the less the inertia moment of the aileron itself about its hinges, and the more rigid and free from backlash the control system, the smaller will be the relative change of angle of the aileron in a given disturbance, and the smaller the forces which tend to cause flutter.

CURES FOR WING FLUTTER.

If the aileron is so balanced that its centre of gravity lies on the hinge axis, it will move bodily with the wing, and wing flutter of this type cannot occur. This then is one complete cure for wing flutter.

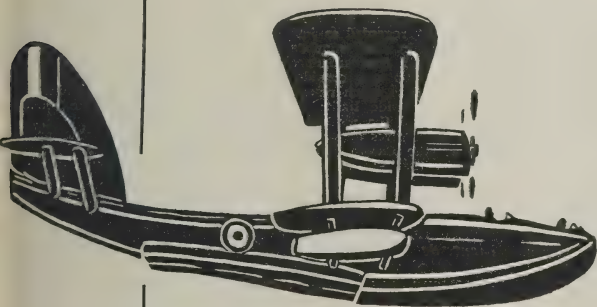
It is quite easy to obtain this condition if ailerons which are balanced aerodynamically are used. The part of the

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aileron projecting ahead of the hinge can easily be weighted to secure the required mass balance.

Unfortunately, aerodynamically balanced controls are undesirable on high-performance machines of precisely the type most prone to wing flutter. They are capable in some conditions of causing vibrations just as objectionable as those of the types now under discussion. And the fitting of controls which do not themselves actively oppose violent movement by the pilot at high air speeds tends very greatly to increase the manoeuvring stresses to which such machines may be subjected.

Increasing the stiffness of the wings—particularly near the tips—will increase the frequency of resonance, and also put up the air speed at which flutter can occur. If this can be done to a sufficient extent to put the air speed of flutter above the maximum driving speed of the aeroplane, then again flutter cannot occur.

That this brief outline is reasonably accurate is confirmed by the fact that wing flutter was first encountered more than five years ago on cantilever monoplanes of relatively low speed. It is reported that in some of these cases balancing the ailerons, so that the c.g. lies on the hinge, has completely cured the defect. With the much stiffer biplane type of wing structure wing flutter has occurred only in quite a small number of types of single-seat fighters, and then only at diving speeds.

It is further confirmed by the fact that a stiffening of the wing structure which sufficed to cure it in one specific type of machine has apparently been found insufficient when applied to a machine of generally similar type but of still higher performance.

It would therefore seem that the only complete cure is the use of ailerons balanced about their hinges, and that what is required now is the development of a type of control surface which can be thus balanced without introducing those troubles which attend the use of aerodynamically-balanced surfaces on high-speed machines.—W. H. S.

MAJOR MAYO ON COMMERCIAL AIRCRAFT.

In a paper entitled "Some Notes on the Design of Commercial Aircraft from the Operational Point of View," read before the Royal Aeronautical Society on Thursday, Feb. 27, Major R. H. Mayo dealt in some detail with the present defects of Commercial Aircraft and with the hopes for their future improvement.

Major Mayo is both Technical Adviser to Imperial Airways Ltd. and a Director of the Aircraft Operating Co. Ltd., and he has recently returned from a visit to the United States, where he has been able to investigate some of the more recent developments of commercial flying in that country.

In the opening phrases of his paper Major Mayo announced that he proposed to emphasise as strongly as possible the factor which in his opinion was essential to the future of Commercial Aviation—the attainment of the highest degree of safety and reliability.

Regular Air Line Services had been of so much more general interest than any other form of civil aviation in Britain that here there was a tendency to overlook other developments of Commercial Aviation. In America there were, he believed, something like 5,000 civil aircraft engaged on services other than regular Air Lines, and Commercial Aviation was well on the way to becoming an important National Industry.

On examining British design for commercial air transport since 1910, it would be found that nearly all the important progress had been made in the direction of reliability.

Although this great improvement had been made in reliability and this improvement had gone far towards securing safety it had not achieved all the safety that was desirable.

There were only three sources of serious risk in present day air transport. These were:—(i) Lack of reliability of the power plant. (ii) Bad visibility. (iii) Inherent aerodynamic defects in the present design of aeroplane.

RELIABILITY AND POWER PLANTS.

Major Mayo said that the twin-engined type of aeroplane had established a superiority in safety over the single-engined type, and that in its turn the three-engined type would supersede the twin-engined type. In his opinion the process would not stop there, but four, five and six-engined types must come into use.

To get the maximum degree of reliability from multi-engined types geared-down engines and variable pitch airscrew were needed.

The greatest advance in power-plants recently had been the adoption of the air-cooled engine.

The controllability of modern aircraft was better than that of the older types. Balancing of the surfaces made manual control of the largest machines of to-day possible, but larger machines would need relays and servo-motors would be necessary.

There had been as yet no application to commercial machines of the Handley Page slot and aileron control, but that, and the remarkably good control at low speeds of the Fokker monoplanes, were being kept in view.

DEFECTS OF DESIGN.

The structural strength of British Commercial Aircraft raised no complaint, but detail design was not up to the standard of the main structure. Details did not fail, but they needed too frequent replacement.

He said that the fundamental aerodynamic defects of present aeroplanes were:—(i) They land too fast and run too far after landing. (ii) The gliding angle is too flat, consequently the approach to land is too difficult. (iii) The run to get off is too long. (iv) The angle of ascent after taking off is not great enough; and (v) if the aeroplane is stalled it becomes both unstable and uncontrollable.

It had been demonstrated that some of these defects could be remedied, and the position was hopeful because attention was focussed upon these problems.

THE GUGGENHEIM FUND.

The Trustees of the Guggenheim Fund had decided to hold an open International Safe Aeroplane Competition during the next few years. As the representative of the Fund in England, Major Mayo had hoped to be able to make an official announcement concerning the conditions, but he could not yet do so.

However, he could say that the competition would offer substantial prizes for a real improvement in the safety characteristics of a useful aeroplane.

The paper was followed by a lengthy discussion not altogether in confirmation of Major Mayo's views. A complete report of both paper and discussion will appear in *The Aeronautical Journal* in due course.

EDUCATION AT YEovil.

Copies of three papers recently read before the Westland Aircraft Society at Yeovil, which have been forwarded to *THE AEROPLANE*, serve to indicate that this new society has set for itself a distinctly high standard of usefulness.

As was indicated in the Society's programme (published in this paper some time ago) a special feature is made of lectures for the benefit of prospective ground engineers. In the first of these papers, Mr. W. G. Gibson, Works Manager of the Westland Aircraft Works, points out that the man who is regularly employed in the manufacture of aircraft components, may have very little chance of obtaining information as to the adjustment of these components in service. It is however desirable that all those engaged in aircraft manufacture should possess such knowledge, and should in fact be qualified ground engineers, and this particular series of lectures was designed to give opportunities for the spread of such knowledge.

The first paper deals with "Aeroplane Controls, Faults and Diagnosis." It begins by describing the general features and functions of the normal control system, and then proceeds to give an outline of the various points which require periodical inspection and the type of fault which may be expected to develop in such items as cables, pulleys, fair-leads, bearings, pin joints, levers and control shafts.

Thereafter it discusses in detail the steps which should be taken on receipt of a complaint from a pilot of unsatisfactory behaviour of a control in the air. The cases of a machine flying one wing down, being heavy on lateral control, suffering from general sloppiness, developing control flutter, or becoming abnormally nose or tail heavy are then discussed, and the probable or possible causes and the appropriate cures are then considered in detail in a very practical way.

The second paper of this series was by Mr. V. S. Gaunt, Secretary of the Society, on "The Construction and Assembly of Seaplanes." This gives a description of the usual types of seaplane—both of the float and boat type, with particular reference to those points which are not usually to be found in land aircraft.

The third paper dealt with "Glues," and was read by Mr. H. Burdett, of The Improved Liquid Glue Co. Mr. Burdett pointed out that until the requirements of the aircraft constructor made it necessary to investigate the strength of glued joints with real care glue was usually regarded as just glue, and that even large users of this article bought their supplies on the basis of price alone. The issue of the British Standard Specification 2.V.10 for liquid and jelly glues had stirred up very considerable activity on the part of glue makers, and had led to much research on the qualities of glues, which varied within very wide limits with both the methods used in producing the glue and the method of using it when produced.

The paper gives an outline of the methods used in producing glues both of the Casein and the better known gelatinous type, which indicates that the making of a good glue is a distinctly difficult problem.

THE JUPITER ENGINE AND THE MADAGASCAR FLIGHT.

With reference to the remarkable flight recently made by *Lieut. de Vaisseau Bernard*, on a Loiret et Olivier 190 flying-boat fitted with a Jupiter engine, from Marseilles to Madagascar and back to Paris, some additional facts of interest have been received.

The engine was an ordinary series engine which was chosen haphazard by the Naval Authorities from a batch of 500 engines which had been delivered to them, and throughout the flight of 30,000 kms. there was not the slightest trouble or replacement of any kind.

Another interesting point is that the mechanic, *Second Maître Bougault*, had never before had any experience of, or instruction on, the Jupiter engine, and until his return to Paris he had never seen a Jupiter stripped down.

Originally he started on the flight as mechanic in the C.A.M.S. flying-boat, with the Lorraine-Dietrich engine which was to have accompanied the Jupiter-engined boat flown by *Lieut. Bernard*. After completing 2,000 kms., the engine in the C.A.M.S. boat developed water-jacket trouble and at the same time *Lieut. Bernard's* mechanic was taken ill, so that *Maître Bougault* took his place and continued the flight as the Jupiter mechanic. This fact alone conveys a very fine idea of the confidence which *Lieut. Bernard* had in his Jupiter engine.

It is officially stated that the total running time for the Jupiter during the flight was 270 hours, which certainly stands out as a remarkably fine record for any engine without overhaul or replacement, particularly when operated under such strenuous conditions.

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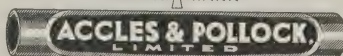
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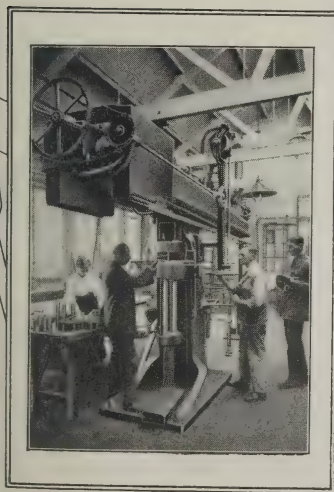
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THE FLYING CLUBS. The London Aeroplane Club.

Report for week ending Feb. 20.

Total flying time 30 hrs. 5 mins.
Fog again interfered with flying during the earlier part of the week, and we were only able to make a start late on Thursday afternoon.
Pilot Instructors:—Messrs. F. G. M. Sparks, A. S. White, C. D. Barnard, R. W. Reeve.

Dual Instruction:—F. Clarkson, G. H. Saxon Mills, G. Eady, S. Pritchard-Barrett, Miss Spooner, G. Wallcousins, C. H. Swan, F. E. Rose Richards, A. J. Mulder, R. C. Presland, H. O. Guggenheim, Miss O'Brien, D. S. Hewitt, R. P. Cooper, R. Drysdale Smith, L. W. Gibbens, C. R. Campkin, A. F. Wallace.

Solo Flying:—S. O. Bradshaw, O. J. Tapper, E. S. Brough, H. Spooner, G. Eady, A. F. Wallace, Sgt. Ldr. M. E. A. Wright, Miss O'Brien, N. H. Jones, R. Malcolm, D. H. P. Esler, C. R. Campkin, R. P. Cooper, A. G. D. Alderson, R. C. Presland, A. R. Ogston, K. V. Wright, F. G. Lucas, G. H. Craig, S. Pritchard-Barrett, G. Wallcousins.
Joy-rides:—C. E. Brady, Miss Tuff, S. H. Smith.

The Bristol Brownie was flown solo 27 times during the week by members who had qualified for their Aviator's Certificates.

NORWICH MEETING.—The Club will be sending a D.H. Moth in charge of Mr. F. G. M. Sparks to the Norwich Meeting on Friday, the 25th. The Hon. Lady Bailey is taking delivery of her D.H. Moth this week and will also fly to Norwich to represent the Club.

The Lancashire Aero Club.

Report for week ending Feb. 19.

Total flying time 14 hrs. 15 mins.
Dual with Mr. Brown:—Miss Brown 1 hr. 45 mins., Messrs. Nelson 1 hr. 25 mins., Caldecott 50 mins., MacNair 50 mins., Davidson 35 mins., Newton 25 mins., Heys 25 mins., Williamson 20 mins., Twemlow 20 mins., Parker 10 mins., Dickinson 10 mins., Goodyear 10 mins., Crosthwaite 10 mins.

Solo:—Mr. Scholes:—Mr. Ruddy 10 mins.
Solo:—Messrs. Slater 1 hr. 10 mins., Gatterall 1 hr. 5 mins., Wade 20 mins., Twemlow 20 mins., Costa 15 mins., Scholes 10 mins.

Joy-rides:—With Mr. Lacayo—Miss Willett 15 mins., Mr. Ramsden 15 mins., With Mr. Goodfellow—Mrs. Leeming 15 mins., With Mr. Costa—Miss Dodd 15 mins., With Mr. Brown—Messrs. Jones and Thompson 10 mins. each. With Mr. Cantrill—Mr. Spruce 10 mins.
Test flights:—1 hr. 40 mins.

Fierce howls the tempest through the shivering trees;

The scudding cloud-wrack greys the endless sky;

Grouped on the tarmac in their twos and threes

Earnest young pilots wait their chance to fly.

Amid the tempest ceases and the rain

(Ah, gracious rain that giveth all things birth)

Descends. The pilots wait and wish again,

Watching the fast-disappearing earth.

Tempest and rain depart. Steals through the air

That all-pervading wraith we know too well.

Fog holds. And who shall blame us if we swear

(Gently) Well, what the Hell, boys, what the Hell?

The Newcastle-upon-Tyne Aero Club.

Report for week ending Feb. 20.

Total flying time 16 hrs. 50 mins.—LX 1 hr. 45 mins., LY 14 hrs. 30 mins., P.O. (Avro) 35 mins.

Mr. Parkinson is at the C.F.S., so all flying was by Pilot members.

The following members flew with passengers:—Mr. J. D. Irving with Messrs. N. S. Todd, Pike, Gibson, J. Bell, Mr. Forsyth Heppell with Mrs. Heppell, Dr. Dixon and Mr. Turnbull. Mr. C. Thompson with Mrs. Heppell, Mr. Thirlwell and Mr. Boardman. Dr. Dixon with Mr. Thirlwell, Mr. Phillips and Mr. A. Bell. Mr. W. B. Ellis with Mrs. Ellis, Mr. Turnbull, Mr. A. Bell with Mr. J. Bell.

On Wednesday a short picnic flight was arranged, the route being Cramlington to Chillingham Castle, Bamburgh, Cramlington. The following members took part:—Mr. Heppell (Avro) with Mrs. Heppell and Dr. Dixon; Lord Ossulston on his own Moth with Miss Dunford; Mr. N. S. Todd and Mr. J. D. Irving (LX); Mr. Phillips and Mr. A. Bell (LY).

It was a clear day with a strong wind at Cramlington, but this dropped soon after leaving the aerodrome. The party was received at Chillingham Castle by the Countess Tankerville and after light refreshments all proceeded to Bamburgh, where lunch had been ordered at the Lord Crewe Arms. Lord Ossulston and the pilots of the two Club Moths got away in good style, but owing to the bumpy nature of the ground the Avro sustained damage to its undercarriage while attempting to take off and had to be left behind, Dr. Dixon flying with Mr. Phillips for the remainder of the journey.

As the Avro could not be moved, it was dismantled and returned by motor-lorry on Thursday to the aerodrome. Mr. and Mrs. Heppell and the Secretary supervised the dismantling (while the other members of the party enjoyed what apparently was an excellent lunch), returning to the aerodrome in a car lent by Lord Ossulston. It was a very good day in spite of the mishap, which added a touch of adventure which would have been lacking had all the machines finished. [What cheery philosophers these hardened Northerners are!—Ed.]

It has been decided to hold this year's Flying Meeting on Sept. 3.

The Midland Aero Club.

Report for week ending Feb. 19.

Total flying time 7 hrs. 25 mins.

The following members were given dual instruction by Mr. McDonough:—J. Brinton, H. Beamish, C. Fellows, H. D. Coleman. The following "A" Pilots made solo flights:—W. Swann, G. V. Perry, E. R. King, E. J. Brighton.

Passengers by Mr. Brighton:—S. H. Smith, W. Nunn, V. M. Parsons, C. H. James.

On Thursday Wing Cdr. Rippon had a flight with Mr. McDonough. Mr. C. Fellows made his first solo on Saturday, very satisfactorily. He afterwards flew alone for 15 mins.

Fog has been prevalent. On Sunday visibility was extremely bad at 1,000 feet, but at 2,000 feet the air was clear with brilliant sunshine.

The Annual General Meeting of the Club was held at the Queen's Hotel, Birmingham, on Feb. 17, when the following officers were

elected for the ensuing year:—Chairman, Mr. J. C. Wood; Hon. Treasurer, Mr. H. A. Pepper; Hon. Sec., Major G. Dennison.

A hearty vote of thanks was passed to the retiring Chairman, Major K. V. C. Brook, for the valuable assistance given to the Club during his term of office.

The Hon. Treasurer presented the balance-sheet and said that although they were not able to boast of anything in the nature of untold wealth they were managing to hold their heads above water. Having regard to the many difficulties which the Club had had to face and the fact that this was the first, and necessarily experimental, year of operations he considered the results were satisfactory. The Light Aeroplane Clubs were something quite new and they consequently had no past experience to guide them. He believed that 1927 would be a bumper year.

Major Brook considered that the recent reduction in flying charges from £2 to 30s. per hour for solo was a very good move and would mean more flying and an increase in revenue in the long run, as it provided the "A" Pilots with an incentive to put in more flying and what the Air Ministry wanted was a good record of hours flown. V. M. F.

The Yorkshire Aeroplane Club.

Report for week ending Feb. 20.

Total flying time 9 hrs. 45 mins., made up as follows:—Solo, 5 hrs. 5 mins., Dual, 3 hrs. 35 mins. Tests, 1 hr. 5 mins.

Solo flights were made by Messrs. Dawson, Mann, Wood, Lax, Norwell, and Carter, and the following flew dual: Messrs. Batcock, Lax, Oglesby, Wilson and Brown.

On Sunday, Feb. 20, Messrs. Mann, Dawson and Wood successfully completed their flying tests to qualify for their "A" licences. Afterwards Mr. Mann flew Mr. Dawson home to Nun Appleton Hall.

One understands that representatives of the Club are taking a Moth to Norwich on Friday, when there will be a general gathering of the Clubs with the idea of enlivening interest in the formation of a new Club at Norwich. One wishes the scheme every success, and hopes that other large towns will follow their example.

Before closing this report one should mention that two of our members, Mr. D. D. Little, Vice-Chairman of the Club, and Miss McPherson, committed matrimony on Tuesday last. Is this an inter-Club record?—G. C. F. E.

The Hampshire Aero Club.

A very important step in its development has just been taken by the Hampshire Aeroplane Club, the youngest of the six subsidised Flying Clubs. That is, the Committee of the Club have appointed a full time salaried Secretary.

The membership roll has increased steadily since the Club received its two Moths in August, 1926, and the activities of the Club have broadened to such an extent that the work involved was beyond the capabilities of an Honorary Secretary as a spare time job. Mr. R. V. Perfect, the retiring Honorary Secretary, felt that his duties to his employers, A. V. Roe and Co., Ltd., prevented him from giving enough time and attention to the interests of the Club.

The fact that an Air Pageant on the grand scale is being organised by the Club, coupled with the fact that this will be the World's first amphibian (or amphibious) air display, naturally means that a tremendous amount of organisation will have to be handled. Consequently, the Committee have appointed to the post of Secretary Major R. Ross-White, late the Royal Inniskilling Fusiliers, a pre-War regular officer.

Major Ross-White comes of a well-known Irish family of soldiers and sportsmen, but during the Irish Rebellion after the War, in November 1920, he received a number of wounds at the hands of his fellow-countrymen, so he came across to England. Personally, having spent most of one's youth in Ireland, and knowing the country much better than most Irishmen do, one congratulates Major Ross-White on being quit of a thoroughly useless fraction of humanity. And one hopes that the same fighting spirit which enabled his ancestors, when backed by a competent English Government, to establish themselves in Ireland, will enable him to establish himself as a force in British Aviation.

Considerable improvements are being made on the Hamble Aerodrome. Structural alterations to the large building at present occupied by the Club have begun, and in a few months a very fine Club House should be available for members. The Committee proposes to lay down two tennis courts close to the Club House.

In addition they hope to have a Moth fitted with a seaplane undercarriage within the next three months for the use of members who happen to be of a nautical turn of mind. When that happens the Hampshire Aeroplane Club will be in the happy position of being the first Club in the country, or in the World, to own a seaplane for the use of its members. Altogether the Hampshire Club seems to be going very strong.—C. G. G.

Report for week ending Feb. 18.

Total flying time 6 hrs. 55 mins. Instruction flying 2 hrs. 55 mins. Solo flying 2 hrs. 5 mins. Test flights 1 hr. 5 mins.

The following members had instruction:—The Hon. H. R. Grosvenor 1 hr. 40 mins., Capt. H. T. Molyneux, M.C., 40 mins., Lieut. A. R. Cadell, R.N., 35 mins.

The soloists were Señor de la Cierwa 2 hrs. 35 mins., K. P. L. Bowen 5 mins., R. H. Cooper 5 mins., Lieut. Cadell, R.N., 5 mins., and the Hon. H. R. Grosvenor 5 mins.

Fog prevented flying on four days of the week, but visibility improved on Friday, so two more soloists went off, viz., Lieut. A. R. Cadell, R.N., and the Hon. H. R. Grosvenor.

Incidentally, Mr. Grosvenor beat the Club's record for shortest period of instruction, as his total time for dual was five and a-half hours from the time of his first passenger-flight. The rule of the Club is that no pupil must be sent off with less than six hours' instruction, but Mr. Thomson was satisfied that this pupil was perfectly safe. One other fact is worth recording about Mr. Grosvenor, and that is he has been having most of his instruction with his left arm in a sling, the result of a fall whilst steeple-chasing recently.

Weather permitting, we shall be at Norwich on Friday, the 24th, to take part in the meeting in connection with the formation of the East Anglian Flying Club.

COMMERCIAL AERONAUTICS.**The London Terminal Aerodrome.****ANALYSIS OF FIGURES FOR THE PAST WEEK.**

Trips per Day—Monday, 9; Tuesday, 6; Wednesday, 6; Thursday, 5; Friday, 14; Saturday, 12; Sunday, 0.

IMPERIAL AIRWAYS LTD.:

London—Paris; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam; Machines 12, passengers, 42, freight 5 tons.

AIR UNION:

Paris—London: Machines, 9, passengers 6, freight 10½ tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 8, passengers 5, freight 1 ton.

DEUTSCHE LUFTHANS A.G.:

Berlin—London: Machines 4, passengers 1.

ARABIA:

Brussels—London: Machines 2, passengers 3.

PRIVATE:

Machines 1, passengers 0.

Total number of trips by British Machines, 13, carrying 42 passengers. Foreign Machines, 23, carrying 15 passengers.

Comparative Figures:**Week ending Feb. 20:**

Machines, 36; Passengers, 57; Crews, 59; Total personnel, 116.

Corresponding week, 1926:

Machines, 74; Passengers, 177; Crews, 91; Total personnel, 268.

Corresponding week, 1925:

Machines, 67; Passengers, 120; Crews, 84; Total personnel, 204.

Corresponding week, 1924:

Machines, 68; Passengers, 113; Crews, 113; Total personnel, 226.

Corresponding week, 1923:

Machines, 42; Passengers, 102; Crews, 76; Total personnel, 178.

Corresponding week, 1922:

Machines, 45; Passengers, 81; Crews, 74; Total personnel, 155.

Corresponding week, 1921:

Machines, 30; Passengers, 32; Crews, 38; Total personnel, 70.

Croydon Notes.

The event of the week was the gallant attempt by pilots of Imperial Airways Ltd. to bring Sir Samuel and the Lady Maud Hoare back from Paris to London as a conclusion to their journey to Delhi and back. On Monday, Feb. 14, Mr. Olley took a Handley Page W.10 (G-EBMT) was the registration and it lived up to it), to Paris. Arrangements had been made for Mr. F. L. Barnard to go over on Tuesday with an Argosy. The fog however was too thick so Mr. Barnard went over by surface transport prepared to bring the S.O.S. and party back in the W.10.

On Wednesday Mr. Hinchliffe made two attempts to get through on an Argosy, but the fog was too bad. The S.O.S. remained in Paris until Thursday and on receipt of the 11.00 hrs. weather report they decided to return by surface transport, and safely survived the greater risk of travelling on French Railways.

The cause of the abandoned trip was the fog over Northern France

and it must not be forgotten that on recent occasions while air transport has not suffered any interference surface transport in the Channel has been suspended, and the *Maid of Kent* came a nasty bump.

On the Wednesday the fog cleared a bit on the Rotterdam route and Mr. Geyssendorfer on the Fokker F.VIIa with Jupiter engine was able to get from Croydon to Rotterdam, although the weather was very thick in the neighbourhood of Croydon. Like Mr. Smirnoff on the previous Saturday he had complete faith in the Fokker-Jupiter. To-day, Wednesday, the fourth Hercules, piloted by Mr. Hinchliffe, and with Mrs. Geoffrey de Havilland among the passengers, is due to leave Croydon at dawn for Cairo. This calls to mind that stirring and moving occasion on which so many public-spirited, patriotic, and air-minded people (including oneself) braved the rigours of a cold Boxing Day Dawn to dispatch the S.O.S. to India. (It looks as though one will be able to refer to this gallant deed when dawn broke and found people wearing all sorts of costumes, from bowler-hat-and-plus-fours downwards.)

The Martinsyde-Puma two-seater, prepared by A.D.C. Aircraft for Mr. Hope's air-taxi service, has been tested by Mr. Perry and is well up to expectations. Mr. Hope, however, being rather like the Air Ministry, is as secret about it as if it were a Schneider racer, and will not reveal the great secret of its speed. However, it is his machine and he does enjoy himself so.—G. D.

THE CIRRUS ENGINE:

In another part of this paper will be found an official statement to the effect that Cirrus Aero Engines Ltd. has been formed to take over from A.D.C. Aircraft Ltd. that part of their business which relates to the Cirrus engine.

This is a step towards the cheapening of the Cirrus engine. Up to now the Cirrus has had to bear much of the overhead charges of A.D.C. Aircraft Ltd. For the present the construction of the Cirrus will be carried on as before but it is probable that it will shortly become a separate unit and will take over a complete portion of one of the A.D.C. buildings.

Other plans for cheapening the engine are being considered. For example the first act of the new company will be to examine the problems of quantity production, and a start will be made by laying down 100 new engines at once.

A considerable sum of money is expended in stripping each engine for examination after its test run. As it has been found that no replacement is ever necessary after such a run one would suggest to the Air Ministry that they should only examine one out of ten engines. They could pick which engine they liked and so keep the makers up to scratch.

It is at any rate a sign that the light aeroplane is making progress when the manufacturers of one type of engine find it worth while to turn them out in batches of 100.—G. D.

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ON OUR SCIENTIFIC ORGANISATIONS.

Most people now know that renewed efforts are being made to amalgamate the Royal Aeronautical Society and the Institution of Aeronautical Engineers. On the face of it people might think that such an amalgamation would be all for the good of British aviation, in that it would create an organisation which would include all the scientists and engineers concerned with the construction of aircraft and that such a Society would carry very great weight among official, political and industrial personalities.

On second thoughts one is not so sure that amalgamation is likely to be a good thing. Almost certainly one of the bodies would swamp the other, and, on sheer weight of numbers and seniority, it seems quite likely that the Society would swamp the Institution.

If that should happen, the result would be entirely bad, for the Institution, composed as it is of young and ambitious men, has been a very useful spur to aeronautical progress ever since it first came into being, and for the last few months it has been particularly active. Its gatherings have been cheerful and lively and provocative, quite free from that atmosphere of highbrow pomposity and pseudo-scientific hot-air which has made people so tired of the R.Ae.S. ever since it ceased to have the active support of a large Aircraft Industry, as it had during and for a little while after the War 1914-18.

One cannot help feeling that British Aviation would benefit by keeping the two organisations apart. Then the R.Ae.S. under the active and energetic chairmanship of Colonel Sempill, might develop into a really useful scientific body, so far as there is any science about aeronautics, and, by proper use of its opportunities, it might develop an exact science. On the other hand, the Institution of Aeronautical Engineers might do equally good work by sticking entirely to engineering discussions, leaving all the highbrow stuff to the senior Society.

In any case, "Competition is good for Trade," and we are likely to make very much more progress with two Societies than we are if one is allowed to swallow the other and thereafter to sink into plethoric slumber, after the manner of the snake which has swallowed its fascinated victim. So one advises the Institution rabbit to think twice before it gazes too affectionately into the royal eye of the Society snake.—C. G. G.

THE KHARTUM-KISUMU AIR SERVICE.

On Feb. 10 Capt. T. A. Gladstone completed the first round trip from Khartum to Kisumu and back of the service which is being operated by the North Sea Aerial and General Transport, Ltd. He was using a Fairey III D. seaplane (450 h.p. Napier Lion engine) which was loaned to the company by the Air Ministry pending the making of repairs to the D.H.50 "Pelican" which was damaged in a test flight before the service began.

The machine carried 120 lbs. of mail from Kisumu. This mail was taken over by the R.A.F. and flown to Cairo where it was delivered on Feb. 20, thus showing a saving of about 15 days over the time taken by ordinary ground methods of transport.

The total flying time was 23 hours, which included a visit to Entebbe, Uganda.

It is estimated that the normal time for the single journey will be three days of seven flying hours each.

The next outward mail will leave Khartum on Feb. 22 with one passenger and mails, and thereafter a regular service will be run on a fortnightly schedule.

MR. HINKLER'S PLANS.

That Mr. Bert Hinkler was to attempt a flight to Australia on an Avro Avian fitted with a Cirrus II engine, has been an open secret for some time. Mr. Hinkler was anxious that nothing should be said about it until the machine had been fully tested. As however the flight was mentioned on Sunday and Monday in the daily press, there is no longer need for secrecy, though there is need for accuracy.

Mr. Hinkler hopes to start some time in March, and by covering about 1,500 miles a day he hopes to reach Australia in seven days.

He is leaving A. V. Roe and Co. Ltd. altogether and has a number of important projects on hand. Among other things he is to represent Major Jack Savage's skywriting interests in Australia.

Everyone will wish him the best of luck in this new venture, and will hope to see him back in England again one day. But of this and other things about the flight more will be said before he starts.—G. D.

ROUND THE ATLANTIC OCEAN.

On Feb. 14 Colonel the Marchese de Pinedo, Capt. del Pre and Signor Zaccchetti, who left Elmas, Sardinia, on Feb. 12 in a Savoia 55 flying-boat, in an attempt to fly round the Atlantic Ocean, arrived at Villa Cisneros, Spanish Guinea.

Leaving Villa Cisneros the same evening they made a moonlight night flight of 1,000 miles to Bulama, Portuguese Guinea, the previously-arranged starting place for the 11,000 mile flight across the southern Atlantic to Natal, Brazil.

On Feb. 16 they made several attempts to get off, but the machine was too heavily loaded and the sea conditions were unfavourable so that they decided to fly to Porto Praia, Cape Verde Islands and so shorten the trans-Atlantic flight to 1,500 miles.

On Feb. 18 they flew from Bulama to Dakar and on Feb. 19 continued to Porto Praia where they arrived at 11.26 hours.

BRITISH ENTRIES FOR THE SCHNEIDER CONTEST.

As this paper goes to press the statement has been made that the Royal Aero Club has definitely entered their machines for the Contest for the Schneider Trophy.

These machines have been built by the Supermarine Aviation Works, the Gloster Aircraft Co., and Short Brothers. Unless there is undue interference by the Air Ministry they should be finished in time for the contest, which cannot be held before September.

THE INSTITUTION OF AERONAUTICAL ENGINEERS.

The following meetings have been arranged by the Institution of Aeronautical Engineers during March:—

On Tuesday, Mar. 8, Major H. N. Wylie, B.Sc., will read a paper on Portable Hangars.

On Tuesday, Mar. 22, Mr. Lawrence A. Wingfield will read a paper on Aircraft Law.

Both meetings will be held in the rooms of the Junior Institution of Aeronautical Engineers, 39, Victoria St., S.W. at 6.30 p.m.

NEW COMPANY.

CIRRUS AERO-ENGINES LTD.—Private company. Registered Feb. 1930, £10,000 in £1 shares. Objects: To acquire the goodwill that part only of the business of A.D.C. Aircraft Ltd. which is concerned with the manufacture of Cirrus Aero-Engines; and in connection therewith the registered trade mark "Cirrus." No. 453, in Class 6. The subscribers (each with one share) are: F. S. Gaylor, 4, Old Burlington Street, W.1, solicitor; C. Helmore, 4, Old Burlington Street, W.1, solicitor's clerk. The first directors are to be appointed by the subscribers. Remuneration: £100 each per annum (chairman £200) free of income tax. Solicitors: F. S. Gaylor, 4, Old Burlington Street, W.1. Registered office: Regent House, Kingsway, W.C.2.

PERSONAL NOTICES.

MARRIAGE.

ROSS-NICOL.—At Bloemfontein Cathedral, on Jan. 15, by Dr. Weekes, Captain Charles Gordon Ross, South African Air Force, of the late Mr. W. G. Ross, of Johannesburg, and of Mrs. Ross, Audrey Graham, daughter of Mr. and Mrs. J. Graham Nicol, Bultfontein, South Africa.

FORTHCOMING MARRIAGES.

BLAKE-WILSON.—A marriage has been arranged between Mr. W. T. Blake, of 128, Piccadilly, W.1, and Miss R. Lyall Wilson, 22, Courtfield Gardens, S.W.5.

GOURIER-PRENDERGAST.—The engagement is announced between Alfred William Edward Gourier (late Middlesex Regt. and R.F.A. only son of the late Mr. and Mrs. A. V. Gourier, of Chelsfield, Kent) and Mary Douglas, only child of Dr. and Mrs. William Prendergast of The Close, Winchester.

METCALFE-WHITE.—The engagement is announced of Mr. Robert F. C. Metcalfe, R.A.F., eldest son of the late F. W. Metcalfe of the London Stock Exchange, and Mill Hill House, Brentwood, to Mrs. E. L. Metcalfe, of Brentwood, and Miss Inez Hope White, elder daughter of W. A. Esmonde White and Mrs. G. L. White, grandchild of the late William A. White, Parliamentary Solicitor and Mrs. Agnes S. White, formerly of Dudley Grove House, P.lington, W., and Abingdon Street, Westminster.

MOYES-PHILIPSON.—A marriage has been arranged, and will shortly take place, between Eustace Moyes (Major, late R.A.F. surviving son of the Rev. W. and Mrs. Moyes, Strathblane, N.B.) and Vera, daughter of the late Roland Philipson, of Tynemouth, and Mrs. Roland Philipson, 62, Green Street, Park Lane, W.1.

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[Registered at the G.P.O.
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"WHO DWELL IN THE TENTS OF KEDAR."

(PSALM CXX. 5.)



TEMPORARY ACCOMMODATION:—A De Havilland 9, Puma engine, and Short floats, of the Air Survey Co., Ltd., and its shed at Chittagong. [As a matter of strict ethnology the tent is nearer Tarshish than Kedar, but anyhow it is in a wilderness.—Ed.]

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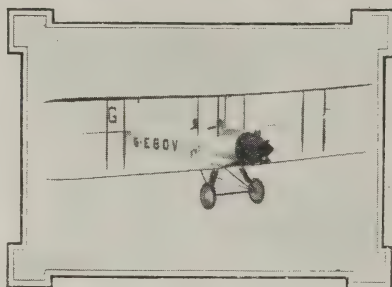
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ON FIRE-PREVENTING PETROL TANKS.

In the year 1922 a Government Competition was held at the Royal Aircraft Establishment at Farnborough the object of which was to discover what is commonly called a crash-proof petrol tank for aircraft. Personally one prefers to call it a fire-preventing tank, or anti-fire tank, because a tank might conceivably be crash-proof in itself and yet might not be bullet-proof, and so might not prevent fire during an air fight.

The terms crash-proof and bullet-proof are in themselves somewhat misleading. Strictly speaking, a crash-proof tank should be one which is proof against breaking in a crash, and a bullet-proof tank should be one which is proof against penetration by bullets. Actually what is necessary is a tank which when crashed or perforated by bullets will not allow petrol to escape. If such a tank can be devised it is in fact a leak-proof tank and a fire-preventing tank, which means in effect a life-preserving tank.

Such a tank need not even be fire-proof, for its object is so prevent fire and not to resist fire. And in fact in certain types of anti-fire tank, if petrol leaks out and catches fire, the fire itself frizzles the coating of the tank and so closes the leak and stops the feeding of the fire.

OFFICIAL DELAYS.

After the Competition in 1922 prizes were awarded to three of the competitors. But since then nothing has been done. Consequently people are quite naturally asking why it is that occupants of aircraft are still being burned to death in machines which have caught fire on the ground after a crash.

The probability is that most times when machines catch fire after a crash the pilot is already dead. Even so, there is a certain sentimental objection to a corpse being burned up. And there must be some crashes in which a pilot or passenger might survive if he were not burned, for one has only to think of the people whom one knows who have survived being both crashed and burned, to realise that others must have died of burns because they were unable to get out of the wreck.

Therefore at first sight one would think that in a matter of four years something or another might have been decided definitely by the Department of Supply and Research at the Air Ministry as to whether life-saving tanks are worth while or not.

One says "at first sight" deliberately, because in the course of the last few years it has become more and more evident that everything in the nature of genuine experimental development of a practical kind is held up, not merely for months but for years, owing to the culpable inefficiency of the particular Department or Departments at the Air Ministry whose duty it is to deal with such developments.

One does not pretend to know whether this is because of the personal incompetence of the senior officials concerned, or to such a Department being under-staffed, or to the sheer laziness of minor officials. The fact remains that over and over again one has traced the blocking of urgent experimental work back to the fact that it has to pass through one particular channel at the Air Ministry.

Until this channel is clear of the obstruction, which seems to have become permanent, experimental work will be blocked and money and lives will be wasted. Such a clearance is necessary for the good of all technical development. The matter only crops up here incidentally in its relation to fire-preventing tanks.

ARE ANTI-FIRE TANKS WORTH WHILE?

The more important question to be decided is whether fire-preventing tanks, or let us call them for the sake of brevity anti-fire tanks, are in fact worth while. The question has to be considered from two points of view, that of the Royal Air Force and that of Civil Air Transport. And perhaps it is easier to settle the question from the Service point of view.

In Service flying two things have to be considered. First and foremost there is the offensive capacity of the aircraft, and secondly the lives of the crews. After all, the object of a Service machine is to do as much damage as possible, regardless of expense, before the machine and its crew are put out of action. It is only when it is put out of action, and when its offensive value has ceased, that the lives of the crew become worthy of consideration at all. This may sound a hard doctrine but it is a cold military fact.

Consequently the first point to be considered is whether the weight of an anti-fire tank, which must necessarily be heavier than that of an ordinary tank, is likely to lower the performance of a machine so much as to deteriorate its value as a machine of war, or whether it becomes of greater value as a weapon because it cannot be set on fire.

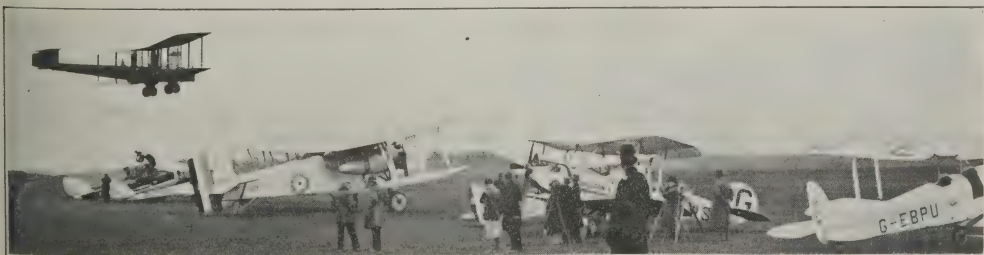
So far as one can gather nobody to-day has got the weight of an anti-fire tank down to less than 1½ lbs. per gallon of capacity over and above the original weight of the tank. An ordinary petrol tank of any of the standard patterns approved by the Air Ministry weighs somewhere about 1 lb. a gallon—a little more for small sizes and a trifle less for very large sizes.

The standard tank for a single-seat fighter with a duration capacity of about 2½ hours is somewhere about 50 gallons, in addition to which the machine carries probably a gravity tank holding about 10 gallons. Therefore the ordinary tank would weigh about 50 lbs. and the gravity tank 14 lbs.

To cover that tank with fire-preventing material would add approximately 75 lbs.—which is roughly equivalent to the weight of ten gallons of petrol or to about half the weight of a man of smallish size.

Consequently to fit a single-seat fighter with anti-fire tanks either the duration of the machine in the air would have to be reduced by over half an hour, or its performance would have to be reduced to the extent which it would be reduced by carrying an extra 95 lbs. weight. For the main tank would weigh 125 lbs. instead of 50 lbs., and the gravity tank would weigh about 35 lbs. instead of 14 lbs. or so.

Now it may be worth while to do that in a single-seat fighter, which anyhow is a short range machine with an enormously powerful engine. But when one comes to long-range bombers, and more especially the enormous multiple-engined night bombers, which carry hundreds of gallons of



AT THE NORWICH FESTIVAL (AERIAL).—A Vickers Virginia (Napiers) over sundry Moths (Cirrus), a Boulton and Paul Bugle (Jupiters), and a B. and P. P.9 (Raf) on Mousehold Aerodrome. A description of the proceedings will be found on the page pertaining to Flying Clubs.

petrol each, the extra weight of the fire-preventing material does become a very serious consideration, in that it must reduce the range of the machine very considerably.

PRO AND CON.

So far as fire as the result of crashes is concerned one might reasonably argue that there is much more chance of a small high-speed single-seater turning over and crashing and catching fire in a forced landing than there is of a big bomber doing the same thing. When landing in a small field, a small high-speed machine may run into a hedge or ditch, turn over, crash and catch fire, where a big bomber would simply barge its way through the hedge, or even through a plantation of young trees, and, though it might damage itself past being fit to fly, would certainly not crash and catch fire. Therefore on those grounds one might very well argue that the small machines ought to have anti-fire tanks and the big machines ought not.

There is, however, another question to be considered. That is, the possibility of machines catching fire in the air owing to their tanks being shot through by bullets or fragments of shell. In time of war more machines catch fire that way than through crashing on landing.

Now it is quite true that in these days if a tank is shot through and the machine catches fire, the pilot can always get overboard with a parachute and save himself. But even that, although it saves the life of the pilot, deprives his side of his fighting machine and a fighting man. And so far as his fighting force is concerned he might just as well be dead, unless of course he happens to be shot down over his own side of the lines, which certainly ought not to happen to any British aviator.

Therefore if it be possible to produce tanks which will not only prevent fire after crashing but will also prevent leakage and consequent fire after being shot through, it strikes one that anti-fire tanks are very well worth while even at a considerable sacrifice of range of action and duration in the air.

For the matter of that most of the machines in the possession of the R.A.F. at the present moment have such a poor performance owing to defective aerodynamic design that they could very well add 1½ lbs. per gallon of their petrol capacity to their weight and still be so much cleaned up outside that their performance could be improved.

INCREASING MORAL.

There is yet another advantage about the anti-fire tank, and that is its moral effect in battle.

During the War 1914-18, when one was agitating fiercely in this paper for parachutes as a standard fitting, one used to argue that if a man knew that he had a sporting chance of getting out of his machine with a parachute, and getting down alive, if his machine were set on fire in the air, he would go into a fight with a lighter heart, or would take bigger chances on a bomb raid, than ever he would if he knew that being set on fire in the air meant certain death.

The opponents of the parachute—for there are always opponents to every kind of life-saving innovation—used to argue that if a man could get out in a parachute whenever he felt scared we should have people surrendering in this way over enemy territory whenever they had had enough of a fight, or they would not take the risk of getting home from enemy territory with machines which had been shot about and badly damaged, but not set on fire.

Two years of war and seven years of peace had to pass before one's arguments in favour of the parachute came to be recognised by the High Authorities at the Air Ministry, for it was only in 1925 that parachutes began to be taken seriously.

Now, in 1927, one argues that anti-fire tanks will have even more moral effect in air fighting than parachutes will have. And they will add considerably to the moral effect achieved by parachutes, for they will have a double effect.

Not only will they abolish that perpetual fear of fire in the air which always hangs around the back of the mind of a fighting pilot and so without his knowledge increases the strain on his nerves, but they will also remove from his mind the thought that if his machine is set on fire he will be liable to the double unpleasantness of having to do a parachute drop and of being taken prisoner, with the added possibility of being severely damaged through landing in an unsuitable place even if he makes a good parachute drop.

If the fear of fire can be removed from his mind at least half the nerve-strain of flying will be removed. And he will still have his parachute to save his life if some vital part of his machine should be shot away or if his engine should stop over country where a safe landing is impossible. Consequently he will have nothing much to fear except the danger of being shot himself.

WAR FACTS.

If one could only get at the actual statistics for air fighting during the War 1914-18 one would probably find that quite a small proportion of the casualties were caused by actual wounds received in fights. And very few people indeed were either shot dead in their machines or died of wounds received in their machines.

By far the greater proportion of deaths were caused either by machines being set on fire in the air, which could be entirely prevented by anti-fire tanks, or by machines being so shot about that they broke in the air, in which cases life could be saved by parachutes.

Therefore one is forced to the conclusion that we could well afford to sacrifice some of the range of our aeroplane so as to allow them to carry anti-fire tanks and parachute and thus raise the moral of the fighting men by giving them just about four times as good a chance of coming out of an air fight alive as they had in the War 1914-18.

In this connection it is well to note that in spite of all that was written about our heroic aviators, the actual percentage of casualties among officers (apart from other ranks flying over the lines (cutting out all the people on ground duties) was actually lower than that among officers of the combatant units of any other branch of the Army—horse foot and guns. And this was so in spite of the enormous high proportion of officers in the Flying Services.

Thus one sees that by a few very simple expedients, such as anti-fire tanks, parachutes, and the proper aerodynamic design of aeroplanes, air fighting could be made very much safer than any other form of warfare. And so, instead of parents regarding with horror the idea of their sons joining the Air Force, we may find them in the next War using all possible influence to get their sons into the Air Force as being the safest branch of the King's Fighting Services.

We may rest assured, knowing something of the fighting spirit of the average young Englishman of the rising generation, that this change in the parental attitude will in no way deteriorate the fighting value of the Air Force. The scarcity of applications for cadships at Cranwell is not by any means due to the boys themselves. It is purely the natural fear that parents have of losing their children.

And the fact that this fear still exists is very largely due to the conservatism and stupidity of the technical people at the Air Ministry.

EFFECTS ON BEGINNERS.

There are two side-issues which are worth considering in relation to anti-fire tanks. One is the moral effect on people who are learning to fly, either at R.A.F. flying training schools or at civilian schools, of abolishing fear of fire as the result of making a bad landing. If we can get rid of that fear pilots will land with much more confidence and as a result will probably make very much better landings.

As the second issue there is the fact that fear of fire must almost certainly in some cases be the cause of crashes in



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landing. Pilots as a rule are so terrified of the idea of their machines catching fire in quite a minor crash, that, rather than land their machines in a heap on bad ground, they will hold them off and hold them off to prolong their glide in the hopes of reaching a safe landing ground and, having no anti-stall indicators, thanks again to the stupidity of technicians, will probably end by stalling the machine and sticking its nose into the ground in precisely the way which is most likely to cause a fire.

PETROLEUM FIRES.

In connection with anti-fire tanks there is another point which must be seriously considered. It is that although the tank itself may be crash-proof, to the extent that even in quite a bad crash, bad enough to kill anybody in the machine, the tank will not burst and let the petrol gush out, there is still danger of fire because of the breaking of the petrol-pipe between the tank and the engine.

When a fire happens as the result of a crash, one does not believe that it is caused instantly by the petrol from the burst tank gushing onto hot metal and catching fire from hot spots outside the engine. Exhaust-pipes and so forth are cold enough not to set fire to anything long before the petrol gets at them.

One believes that what does happen is that petrol from the float-chamber of the carburettor catches fire from a naked spark or naked flame somewhere, such as a short-circuit from an ignition wire or a spark inside the magneto, or a flame from a broken exhaust pipe, before the engine has stopped.

One has noticed over and over again in examining wrecks that the airscrew boss and the broken butts of the airscrew blades have actually burrowed their way into the ground, thus proving that the engine has gone on revolving fiercely after it has hit the ground. Which after all is quite natural, because the first thing in the machine to break would be the airscrew blades, and as soon as the load from them had gone the engine would scream round for a few seconds unless something inside it was actually broken in the crash.

One believes that it is something during those two or three screaming seconds which sets light to the petrol. After that petrol has caught fire the petrol from the broken petrol-pipe, or merely petrol flooding through the float chamber owing to the float being displaced, continues to feed the fire till the pipes melt and the petrol comes out from the main tank.

No amount of coating of tanks is every going to stop a fire of that sort. But that sort of fire is going to take very much longer to get going than a fire which is fed by a whole tank bursting and shooting a cascade of petrol over the initial fire. And just that delay of perhaps a minute or so may make the difference between pulling a live man or a dead one out of the wreck, or being forced to leave him to burn.

Therefore on that argument also anti-fire tanks seem worth while.

TANK WALLS.

There is another point about these anti-fire tanks which is worth considering, especially by those who are doing the experiments with such tanks, because it is exactly the kind of point that your high-browed scientific experimenter is apt to forget. That point is the fact that the thicker the tank which is coated the more likely bullets are to punch holes in it which cannot be closed by the coating.

In some of the very early experiments, years ago, it was found that the hole through which the bullet entered closed up easily enough but the bullet was apt to mushroom on hitting the solid mass of liquid inside, or to be distorted by the metal inside the coating, with the result that on going out the other side it pushed a whole chunk of metal with it which made a hole which the coating could not close.

One finds the same thing in bullet wounds in which the entering hole is quite small whereas an enormous hole is made by the bullet itself, possibly with the aid of splinters of bone, where it comes out of a man's body. One remembers Kipling's *Burmese Ballad*, "*The Grave of the Hundred Head*," with the lines:—

And the men of the First Shikaris
Picked up their Subaltern dead,
With a big blue mark in his forehead
And the back blown out of his head.

And tanks act just like that unless the bullet has a free passage.

Also if the metal of the tank is too thick on the entering side, as for example in the tanks of armoured cars and lorries and so forth, the metal on the entering side may be torn and bent by a spreading bullet, instead of having a clean hole punched through it, and so may tear the coating back with it and leave a hole which cannot be sealed.

Actually, there only ought to be enough tank inside to keep the self-closing coating in shape and to afford anchorage for the complete tank to the aeroplane. Therefore one imagines that some weight might be saved in anti-fire tanks by actually lightening the metal part of the tanks so as to compensate for the weight of the self-closing material.

Also there is a possibility of making some kind of a self-closing valve which would shut off the flow of petrol from

the tank if the pipe between the tank and the carburettor broke. If it could be done that would certainly prevent the feeding of a fire in a minor crash.

THINGS TO BE DONE.

Taking all the arguments into consideration for and against anti-fire tanks, one is strongly of the opinion that they are very well worth while, even at some considerable sacrifice of ceiling, so long as neither Service nor civilian machines have their speed cut down. There is a ridiculous tendency in the Air Force at present to think too much about ceiling and not enough about speed and safety. And it is quite time that there was a swing of opinion in the other direction.

Above all things the most important duty of those concerned with the welfare of the Air Force is to hustle the experimental people, more especially that particular department which for years has been blocking the progress of experiments.

God knows we have lost more than enough lives in the last couple of years while we have been playing about with safety-first gadgets, some of which at any rate would certainly have saved quite a considerable number of the lives which have been lost.

Much as one may regret the deaths of one's friends, one cannot regard their lives as wasted when they have lost them in fair fight or in unavoidable accidents, or even in doing experimental flying. But one does feel savage when one sees people continually being killed just because the technical people are either too stupid or too lazy or too obstinate to see or to develop or to acknowledge the value of life-saving inventions.—C. G. G.

AN INTERNATIONAL AIRCRAFT REGISTER.

The Times says that the British Corporation for the Survey and Register of Shipping has decided to co-operate with the *Bureau Veritas*, the French equivalent to Lloyd's, and the German and Japanese authorities, in the formation of an International Aircraft Register.

This step seems to mark the first move towards the freedom of commercial aircraft from Government control and the institution of an Aircraft Registry comparable to Lloyd's Register of Shipping.

It is understood that the Air Ministry welcomes in principle the possibility of transferring to commercial direction a duty they now perform, and it is worth while pointing out that the French Government has already transferred all this work to the *Bureau Veritas*, giving them a subsidy to enable them to add to their shipping activities this aircraft work.

Steps are being taken to alter the charter of the British Corporation to cover aircraft, and its governing body is being enlarged to include aircraft constructors, owners and underwriters. A technical sub-committee is being formed to consider how best to develop the proposed new activities.

The *Bureau Veritas* has agents in every country, and the decision of the British Corporation for the Survey and Registry of Shipping to co-operate with this and the German and Japanese bodies means that the British Corporation will set up machinery to make an examination of these national's aircraft in British territory and will rely on the agents of these foreign bodies to conduct any survey of British aircraft abroad.

There is no question of British aircraft standards being lowered by international co-operation. If the British Registry becomes supreme in air, as Lloyd's Register is at sea, foreign aircraft, whatever their classification in their own registers, will be placed in the appropriate class as judged by British standards in the British registry, and thus a valuable, but at present non-existent, basic standard will be introduced.

A PAN-AMERICAN FLIGHT DISASTER.

On Feb. 25 two officers of the U.S. Air Corps "Pan-American Flight" were killed at Buenos Aires.

The formation of four machines had alighted in the harbour from Mar del Plata, where they were received by the Mayor.

From here they took off to fly to Palomar aerodrome, where they were to spend the night.

When approaching the aerodrome, at a signal from Major Dargue, the Commander of the Flight, the machines broke formation and in circling down the *Delroit* (Capt. Woolsey and Lieut. Benton) came into collision with the *New York* (Major Dargue and Capt. Whitehead). Locked together, the machines went into a spin at about 1,400 feet.

Lieut. Benton fell with the machines and was burnt to death in the wreckage, but the other three officers took to their parachutes. Capt. Woolsey's parachute, for some reason, failed to open, and he was killed, but the other two officers were saved.

[On behalf of British Aviation one offers to the U.S. Air Corps sincere condolences on the loss of these two officers, who had already done such fine flying for their Service and their Country.—C. G. G.]

FIRST ACROSS S. ATLANTIC IN 1 9 2 2



Commander Sacadura Cabral and Capt. Gago Coutinho in 1922 flew from Lisbon to St. Paul's Rocks, and from thence to Rio de Janeiro, in each case using the FAIREY SERIES III SEAPLANE fitted with a single ROLLS-ROYCE 'EAGLE' IX engine.

FAIREY CRAFT

The Fairey Aviation Company, Ltd.
Hayes : : Middlesex.

THE ROYAL AIR FORCE.

The London Gazette.

Feb. 25.

GENERAL DUTIES BRANCH.—Group Capt. R. P. Ross, D.S.O., A.F.C., is appointed Air Aide-de-Camp to His Majesty the King (Feb. 1).

The following Plt. Offs. are promoted to the rank of Flg. Off. (Jan. 30):—H. H. V. Tristram, A. D. Gilmore, J. R. Jones, F. M. V. May, G. E. G. Lywood.

Flt. Lt. F. L. Luxmoore, D.F.C., remains on half-pay, scale B (Feb. 20).

The following are transferred to the Reserve, Class A (Feb. 23):—Flt. Lt. A. G. Taylor, A.F.C., Flg. Off. W. F. Hamilton.

Flg. Off. G. Wilson is placed on the retired list at his own request (Feb. 23).

MEDICAL BRANCH.—The S.S. comm. of Flg. Off. G. E. Church, M.B., is antedated to Feb. 1, 1926, and he ceases to be seconded to the Royal Infirmary, Wigan (Feb. 1).

The following Flg. Offs. are promoted to the rank of Flt. Lt. (Feb. 18):—Lt. C. Palmer-Jones, M.B., T. W. Wilson.

Flg. Off. H. C. Patterson relinquishes his S.S. comm. on account of ill-health (Jan. 14); Flt. Lt. (Hon. Sq. Ldr.) P. R. Humphreys relinquishes his temp. comm. on completion of service (Jan. 31).

Temp. Lt. W. D. Cuyler (General List, Army Dental Surgeon), is granted a temp. comm. as a Flg. Off. on attachment to the R.A.F. (Feb. 5). He will continue to receive emoluments from Army sources; Flt. Lt. N. H. Medhurst (Capt., Army Dental Corps), relinquishes his temp. comm. on return to Army duty (Feb. 5).

CHAPLAINS BRANCH.—The Rev. G. H. Piercy, M.A., is granted a S.S. comm. as a Chaplain, with the relative rank of Sq. Ldr. (Feb. 16).

RESERVE OF AIR FORCE OFFICERS.—GENERAL DUTIES BRANCH.—The following are promoted to the rank of Flt. Lt. (Feb. 22):—C. T. Holmes, N. H. Woodhead, D.S.C. The following Flg. Offs. are promoted to the honorary rank of Flt. Lt. (Feb. 22):—C. F. Uwins, A. S. White, A.F.C.

The following Plt. Offs. are promoted to the rank of Flg. Off.:—R. D. Hambrook (Nov. 24, 1926); M. E. de L. Hayes (Dec. 7, 1926); S. L. F. St. Barbe (Jan. 17); Lt. O. Moss, M.M. (Jan. 27); H. Tulloch (Jan. 28). Plt. Off. on probation E. R. Meads is confirmed in rank (Feb. 8); Flg. Off. E. Marler is transferred from Class A to Class C (Feb. 15).

The following Flg. Offs. relinquish their comms. on completion of service:—C. B. M. Dale (Dec. 5, 1926); A. W. Saunders, D.F.C. (Feb. 5); E. Marsden (Feb. 16); G. T. E. B. Dorman (Feb. 19). Flg. Off. J. C. Croft resigns his comm. (Feb. 22).

Appointments.

Week ending Feb. 28.

GENERAL DUTIES BRANCH.—Wing Commander R. G. D. Small, to R.A.F. Depot, Uxbridge, for Administrative duties, 14/2.

Squadron Leaders C. G. Tucker, to No. 5 F.T.S., Sealand, 7/2. C. J. Mackay, M.C., D.F.C., to No. 216 Sqdn., Egypt, 4/2. J. K. Summers, M.C., and E. R. Whitehouse, to No. 70 Sqdn., Iraq, 18/1. F. R. Alford, M.C., to H.Q., Iraq, 1/2.

Flight Lieutenants B. K. D. Robertson, A.F.C., to No. 84 Sqdn., Iraq, 24/1. K. E. Ward, to No. 4 F.T.S., Egypt, 4/2. J. S. Harrison, to No. 6 Arm. Car Coy., Iraq, 31/1. M. Moore, O.B.E., to H.Q., Air Defence of Great Britain, Uxbridge, 22/2. B. J. W. Brady, D.S.M., to No. 21 Group H.Q., West Drayton, 9/2. G. V. Howard, D.F.C., to R.A.F. Station, Worthy Down, 15/2. A. W. Franklyn, M.C., to No. 1 F.T.S., Netherland, 14/2. C. T. Anderson, D.F.C., to No. 16 Sqdn., Old Sarum, 21/2.

Flying Officers G. H. Stainforth, to C.F.S., Wittering, 3/3. H. E. Rew, to No. 4 Sqdn., Farnborough, 18/2. C. Walter, to No. 24 Sqdn., Northolt, 21/2. J. R. Brown, A.F.C., to No. 8 Sqdn., Iraq, 4/2. R. H. S. Spaight, to No. 8 Sqdn., Iraq, 24/1. J. V. Kelly, to No. 47 Sqdn., Egypt, 28/1. G. N. P. Stringer, to No. 8 Sqdn., Iraq, 27/1. F. E. North, J. E. Davies and G. M. E. Shaw, to No. 70 Sqdn., Iraq, 18/1. R. F. Casey, D.F.C., to No. 39 Sqdn., Spittlegate, 4/3. B. W. Duley, M.M., to No. 99 Sqdn., Bircham Newton, 20/2. J. A. C. Florence, to School of Army Co-operation, Old Sarum, 4/3. K. C. Baker, to No. 32 Sqdn., Kenley, 2/3.

Pilot Officers H. W. Pearson-Rogers, to No. 4 F.T.S., Egypt, 18/2. A. W. B. Hale, to R.A.F. Training Base, Leuchars, 17/2. T. M. Abraham, to R.A.F. Depot, Uxbridge, 16/2. W. C. McNeil, J. Constable-Roberts and E. F. Wain, to R.A.F. Base, Calshot, 21/2. J. W. Duggan,

to No. 100 Sqdn., Spittlegate, 21/2. I. J. Fitch and R. J. Legg, to No. 4 Sqdn., S. Farnborough, 21/3. E. C. Foreman, J. H. Harris and H. P. Hudson, to No. 207 Sqdn., Eastchurch, 21/2. A. A. Leslie, to No. 16 Sqdn., Old Sarum, 21/3. N. McLeod and N. C. Pleasance, to No. 4 Sqdn., S. Farnborough, 21/2. R. R. Nash, to R.A.F. Base, Calshot, 1/3. R. G. Pace and N. C. Ross-Roberts, to No. 32 Sqdn., Kenley, 21/2. G. H. Shaw, to No. 56 Sqdn., Biggin Hill, 21/3. M. A. Smyth and L. R. Stokes, to No. 56 Sqdn., Biggin Hill, 21/2. G. A. V. Tyson, to No. 25 Sqdn., Hawkinge, 21/2. F. D. Biggs, to No. 4 Sqdn., Worthy Down, on appointment to a Perm. Comm. from Cadet College, 15/2. R. Brown, to No. 41 Sqdn., Northolt, on appointment to a Perm. Comm. from Cadet College, 15/2.

MEDICAL BRANCH.—Wing Commanders A. V. J. Richardson, O.B.E., M.B., D.P.H., to H.Q., India, for duty as Principal Medical Officer, 10/2. A. E. Panter, B.A., to Air Ministry, Directorate of Medical Services, for Medical Staff duties, 10/2. F. C. Cowtan, to H.Q., Iraq, 18/2. H. B. Porteous, M.B., to Basrah Combined Hospital, Iraq, 18/2. Flight Lieutenants (Hon. Sq. Ldr.) I. Valeris, O.B.E., to Inspector of Recruiting, 1/3. F. W. G. Smith, M.B., B.A., to No. 56 Sqdn., Biggin Hill, 15/3. A. Harvey, M.B., to No. 14 Sqdn., Palestine, 25/1.

Flying Officers E. J. Mockler, M.B., to No. 5 Sqdn., India, 7/1. M. J. Marren, M.B., to R.A.F. Depot, Uxbridge, 22/2. R. J. L. Bell to R.A.F. Station, Upavon, 22/2. T. W. Wilson, to R.A.F. Bristol Hospital, Iraq, 28/1. F. B. C. L. B. Crawford, M.B., to H.Q., Iraq, 25/1. and P. D. Barling, M.B., to Aden Flight, 9/2.

STORES BRANCH.—Flight Lieutenant W. Sutherland, M.B.E., to Station H.Q., Kenley, 26/2. Flying Officer R. W. Stewart, to Air Ministry Directorate of Equipment, 27/1.

CHAPLAINS BRANCH.—The Rev. G. H. Piercy, M.A., to R.A.F. Station Duxford, on appointment to a S.S. Comm., 16/2.

The King's Levee.

His Majesty the King held a Levee at St. James's Palace on Feb. 24.

Among those in attendance upon His Majesty was Air Marshal Sir John Salmond, Principal Air-Aide-Camp. Group Capt. P. F. M. Fellowes, Aide-de-Camp in Waiting, was also among those present.

The following were among those who attended the Levee:—The Secretary of State for Air, Sir Samuel Hoare; Sir Philip Sassoon; Marshal of the Royal Air Force Sir Hugh Trenchard.

The following officers of the R.A.F. were among those presented to His Majesty by the Secretary of State for Air:—

Wing Cdr. A. ap Ellis, C.B.E., on first appointment. Flt. Lt. P. Barnett, M.C., on first appointment. Sq. Ldr. A. Beuge, on first appointment. Flt. Lt. J. Blackford, on first appointment. Air Commodore A. E. Borton, C.B., C.M.G., D.S.O., A.F.C., on appointment to Director of Personal Services. Flt. Lt. O. Bryson, M.C., D.F.C., A.M. on first appointment. Flt. Lt. M. Coote, on first appointment. A. Commodore J. Forbes, O.B.E., on promotion. Wing Cdr. A. Garro, M.C., D.F.C., on promotion. Flg. Off. G. Holdcroft, on first appointment. Flt. Lt. A. Ledger, M.B.E., on first appointment. Sq. Ldr. W. Park, M.C., D.F.C., on first appointment. Flt. Lt. W. Richard, on first appointment. Air Vice-Marshal Sir John Steel, K.B.E., C.F. C.M.G., on appointment to Command of Wessex Bombing Area. Flt. Lt. T. F. W. Thompson, D.F.C., on first appointment.

Air Aide-de-Camp to the King.

The Air Ministry announces the appointment of Group Captain Robert Peel Ross, D.S.O., A.F.C., as an Aide-de-Camp to His Majesty the King, Feb. 1, 1927.

Group Captain Ross was one of the earliest of the officers of the Royal Navy to join the Naval Wing of the Royal Flying Corps. He served with distinction during the War, 1914-18, both as a pilot and in command of seaplane-cruisers. He took part in the Naval raid on Cuxhaven on Christmas Day, 1914, and later served in the Eastern Mediterranean. Of late he has commanded the Electrical and Wireless School at Flowerdown.

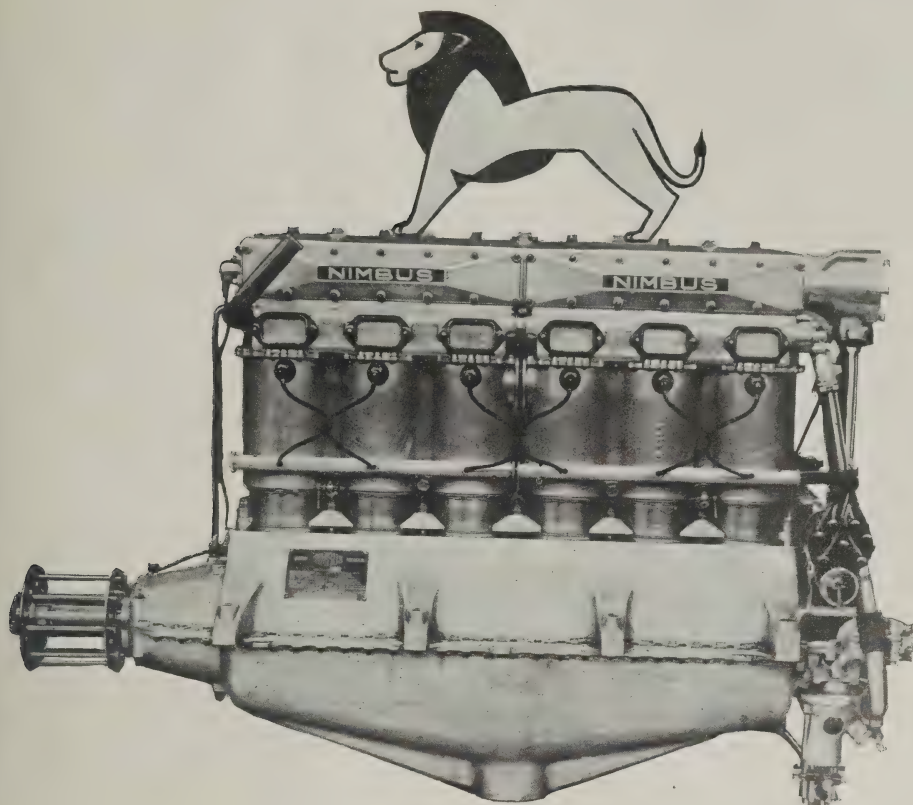
The Royal Air Force Club.

The Annual General Meeting of the Royal Air Force Club will take place at 5 p.m. on Wednesday, Mar. 9.



MIDDLE EAST RUGBY.—The names in the group are (left to right): Flt. Lt. A. W. Turner, Sgt. Alcock, L.A.C. Collins, L.A.C. Blandon, L.A.C. Lockett, Plt. Off. Evans-Evans, Flg. Off. Platts, Flt. Lt. Macdonald, Flt. Lt. Jones. (Seated): Cpl. Brereton, Flt. Lt. Rogers, Plt. Off. Wayte (capt.), Wing Cdr. McKean, Flt. Lt. Gayford, Flg. Off. Legg. (On the ground): L.A.C. Lyle, L.A.C. Morris, L.A.C. Urquhart, Flg. Off. Pitts-Tucker.

THE WINNERS.—The R.A.F. (Middle East) Rugby Football team which beat the Army (Egypt) by 18 points to 0. A correspondent in Egypt wrote: "The Air Force out here are very bucked. They beat the Army for the first time for four years. The team were not supposed to have 'a ope,' but went onto the field with determination and came off covered with glory. They saw the Army's boots right off. The forwards were all over the Army and Wayte was brilliant at scrum-half. All the others played jolly well—a great show."



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

AIR CO-OPERATION WITH THE ARMY.

A lecture was delivered at the Royal United Service Institution on Feb. 23, on "Air Co-operation with the Army," by Wing Cdr. E. L. Gossage, D.S.O., M.C., R.A.F. The Chair was taken by Major-General H. H. O. S. Knox, C.B., D.S.O., Director of Military Training, the War Office.

Wing Cdr. Gossage said that before dealing with Air Co-operation with the Army, he would outline the main functions of an air force. These could be divided into four parts: (a) in the air war which included defence against hostile air attack and attack as a method of defence; (b) as part of our Imperial police force in the same way as our R.A.F. was being used in Iraq; (c) in co-operation with the Navy and Army in such work as the protection of commerce; (d) ancillary to the other fighting Services. Part (a) was particularly important because without it the Army and Navy might never go into action at all.

In all future wars a contingent of the R.A.F. would always co-operate with the Army and Navy. The greatest problem, known to generations of military leaders as "the other side of the hill," had been eliminated by the use of aeroplanes. Air reconnaissance was of the utmost importance. Aircraft had also enabled artillery to make full use of their extreme range. Air bombardment was a potent weapon and the primary agent in air warfare.

The four main categories of aircraft for co-operation with the Army were: Army co-operation machines, day-bombing and reconnaissance machines, night-bombing machines and fighting machines.

Wing Commander Gossage went on to describe the needs of the different military formations and how they were met. He said that the Air Force units working with the Army were part of the Army and that the Air Officer Commanding such units was the technical air adviser to the General Officer Commanding and his headquarters had to be directly attached to G.H.Q.

Describing the manner in which aircraft were allotted, he said that it worked out at one Army Co-operation Squadron per Division, but these Squadrons had also, collectively, to meet the needs of Corps Headquarters. Fighting Squadrons were only needed where the enemy had an Air Force. Bombing Squadrons were not allotted to subordinate commands, but were all allotted to G.H.Q.

The advantages of air reconnaissance were many and included rapidly, accuracy, and the fact that such reconnaissance covered a large area. The sole limitation of air reconnaissance was fog.

He said that there were three forms of reconnaissance—Army, Corps and Divisional. Army reconnaissance could be carried out at a great height with cameras, and because of the element of surprise, by single machines. Only information of a very general nature was required for this purpose. For Corps reconnaissance the machines would have to fly lower to record rail-head movements, movements of troops, etc. The machines would require to operate in formation.

The General Officer Commanding had to state his requirements to the Air Officer Commanding Army Co-operation units and state what machine casualties he was prepared to risk. The Air Officer would then detail the machines.

Divisional reconnaissance was tactical in nature and the information was detailed and had to be obtained from a low altitude. Confirmation of tactical reports from the air was frequently required from ground sources. R.A.F. observers were not expected to make deductions.

With regard to the question of the value of the information obtained by Commanders and Staff Officers undertaking flights prior to operations, the lecturer thought that the benefit was discounted unless a staff officer had had considerable air experience. A staff officer must have had as much air experience as an R.A.F. pilot if he was to make as efficient an observer. But air observation was only a small part of the general picture presented to the Staff.

With regard to artillery co-operation, Wing Commander Gossage said that since the Army co-operation machines had been equipped with wireless all other methods had been scrapped. Radio-telephony was used for close reconnaissance, but not for artillery co-operation, because for one thing it took longer to speak a message than to signal by Morse and for another owing to the close proximity of the sets they were constantly jamming. Signals by the Air Force in the air were received by the Air Force on the ground. The Air Force did not attempt to control fire. What they provided for the artillery was observation of fire and indication of targets.

It had been suggested that artillery officers should be employed for observation with control from the air but there were several reasons against this. One reason was that this would require a two-way fire control and another was that there were no three-seater aeroplanes for Army co-operation.

The pilot was the best person to do the observing because he could manœuvre his machine to get the best view of his target. The passenger had his view constantly interrupted by the planes and was therefore employed as a gunner for protection. A three-seater would have to be a larger machine and it would have to have a very good general performance, and also be manœuvrable near the ground and able to operate in very close quarters. And even then there would not be a very good view for the observer.

The lecturer said that an important factor in Army co-operation was air attack on enemy ground forces. Bombing attacks would strike at the enemy's troops and his air units at the same time. Troops could be deprived of rest, and headquarters disorganised by bombing attacks before a battle. Bombing attacks could also prevent the arrival of reserves, and be used in pursuit of a retreating enemy. In defence a direct attack with machine-guns and small bombs by fighter squadrons could delay pursuit.

The security of reconnaissance and bombing squadrons could only be achieved by the continual dominance of fighter squadrons. The further the offensive was carried into the enemy's territory the greater the dominance. But fighter squadrons could not compel the enemy to fight.

Bombers were a form of provocation which the enemy could not ignore. A merely defensive attitude in the air was unsound if not actually impossible.

The duties of communication flights included liaison visits by Staff officers and the occasional necessity for supply by air. But there was danger in the too frequent use of aircraft for these purposes.

A force in Syria had recently been provisioned daily for sixty days by four aeroplanes. Troops had been successfully carried by aeroplane in Iraq and it was conceivable that this form of emergency troop-carrying might be used to great advantage in raids against vital spots and for rounding up a defeated and demoralised enemy.

He said that the best training for war was to bring the Army and the Air Force so continually into association that they could co-operate. The present arrangements had been made with this idea.

There was an Army Co-operation Branch at the Air Ministry, an Army Co-operation Group at Headquarters at Farnborough, two A.C. squadrons were allotted to the Aldershot Command, one to the Southern Command and one to the Eastern Command. There was a continual interchange of personnel, especially at Aldershot.

Flights were operating with brigades and battalions. At the School of Army Co-operation at Salisbury there were two courses every year of one month for Army Officers. There were permanently attached officers of the General Staff at Salisbury and at Farnborough. An Air Force Instructor had been appointed to the Staff College at Camberley.

No strategical exercise was now considered complete without some air problem. When the R.A.F. came to take its place in the field it would be a smooth-running machine which everybody would know how to use.

Major-General Knox, in thanking the lecturer said that both the Services were doing their best to co-operate. It would be difficult to improve on the relationship between them. The military training that they were able to give the Air Force officer was not quite all it ought to be because there were not enough troops for them to practise on.

Also there was not enough practice for artillery observers. But these restrictions were for financial reasons.

The Army must not demand too much. With the present efficiency of the anti-aircraft guns there would be a greatly increased danger for low-flying aircraft in time of war, and the Army must not break the back of a very willing horse. What was wanted was not so much rules and regulations as well-informed action by men of goodwill, and the men of goodwill existed in both Services.—C. M. MCA.

AIR AFFAIRS IN PARLIAMENT.

THE CAIRO-KARACHI SERVICE.

In the House of Commons on Feb. 21, in reply to a question by Sir HARRY BRITAIN, the SECRETARY OF STATE FOR AIR said that the first of the through flights from Cairo to Karachi was scheduled for Apr. 6. In reply to a further question, Sir SAMUEL HOARE said that the machines would be of the same type as that on which he flew.

LT.-CDR. KENWORTHY asked when it was proposed to link up the European Air Service with this route from Cairo to India. Sir SAMUEL HOARE said that he was most anxious to see the section between Europe and the East fully completed. He could not say when this would be done, but he regarded it as most important that this section should be made as soon as possible.

SIR FREDERICK WISE asked what the cost of the Secretary of State's flight had been, and Sir Samuel Hoare assured him that it would not amount to any considerable sum.

CIVIL AIR TRANSPORT.

In the House of Commons on Feb. 21, in reply to CAPT. CAIRO-JONES, the SECRETARY OF STATE FOR AIR supplied the following figures for civil air transport mileage and explained that these figures did not include joy-riding, photography, etc.:—

Great Britain (1921), 225,000; (1922), 943,000; (1923), 862,000; (1924), 794,000.

Germany (1921), 1,028,000; (1922), 446,000; (1923), 3,075,000; (1924), 3,816,000.

France (1921), 1,471,000; (1922), 2,117,000; (1923), 2,946,000; (1924), not yet available.

No figures were available for Russia.

The reduction in the mileage figures for British commercial aircraft in the last two years was due to the adoption by His Majesty's Government of the policy of subsidising on the basis of horse-power mileage with the object of encouraging the employment of more highly powered machines and thus enabling British air transport to develop towards a self-supporting basis. Thus, though the actual mileage flown was smaller there had been a marked increase in the passenger and ton mileage, the increase in the former being over 40 per cent.

BRITISH AIRCRAFT, 1917-18.

In the House of Commons on Feb. 21, in reply to a question by LT.-CDR. BURNLEY, the SECRETARY OF STATE FOR AIR said that the number of aeroplanes and seaplanes of all types ordered by the Government to be constructed in Great Britain between Nov. 1, 1917, and Nov. 1, 1918, for use with the British and Allied Forces, was 34,450 aeroplanes and 1,567 seaplanes.

In reply to a further question by LT.-CDR. BURNLEY, Sir Samuel Hoare said that the total value of all contracts arranged for in respect of aeroplanes, seaplanes and their parts and accessories with private firms or Government Constructional Departments during the same period had been approximately £150,000,000.

A POSTAL INCONGRUITY.

In the House of Commons on Feb. 22, CAPT. BRASS asked the POSTMASTER-GENERAL whether members of His Majesty's Navy serving in foreign waters could receive letters at 1d. for the first ounce and 1d. thereafter, while members of His Majesty's Army and Air Force on foreign service, for example, in Iraq, were charged at the ordinary civil rate of 2d. for the first ounce and 1d. thereafter.

The Postmaster-General explained that letters addressed to the Army and Air Force in Iraq were delivered through the civil post office and were therefore subject to the same rates as civil correspondence. The Iraq administration had not adopted the Imperial postage rates. Letters for His Majesty's ships were under a special arrangement embodied in the International Convention of the Postal Union, conveyed in direct bags for the various ships which undertook the duty of delivery, and the Imperial rate could thus be applied.

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THE PUBLIC, AVIATION AND THE PRESS.

The subject chosen for discussion at the monthly House Dinner of the Royal Aero Club on Feb. 23 was "The Public, Aviation and the Press." The subject was introduced by Mr. C. G. Colebrooke, the Aeronautical Correspondent of *The Times*.

He said that he had chosen the title of "The Public, Aviation and the Press" because the future progress of British Aviation was bound up with the education of the public. So far he thought that Aviation had failed to convince the taxpayer, the business man and the man of leisure that flying was a necessity and not a novelty.

As a matter of interest he had asked five men in what order of importance they placed the three branches of defence. The first replied that he would put the Navy first and then the Army, though if we had a big Air Force he was not sure that that should not come first. The second man answered, "The Air, the Navy and the Army." The third replied, "Do you mean from the standpoint of Home Defence or Imperial Defence?" and on being told Home Defence, he replied, "Obviously the Army is last, but I am not sure of the Navy and the Air Force. I think the Navy would win by a narrow margin, for, after all, our food comes by sea and not by air." The fourth man gave the order, Navy, Air and Army. The fifth, without any hesitation, said the Air first as it was the arrow head of attack, then the Navy and then the Army. They were all disappointed because none of them had any idea as to whether our Air Force was adequate.

He said that the business man did not take air transport seriously and it was the novelty and not the usefulness of air travel that attracted passengers. The man of leisure thought in terms of motor-cars, but rarely in those of aircraft. If he did think of aircraft there were very few ground facilities that enabled him to get any advantage out of aviation.

He said he must bring in the King Charles' Head of all these discussions. At the Aero Club the discussion always turned on the Air Ministry. He said that he would willingly leave them in their usual state of Adastral Introspection, but unfortunately the only active source of education in this country would be more or less dependent upon the Air Ministry for their nourishment.

This, he said, was the age of the megaphone, the microphone and the spotlight. It was the business of the Air Ministry to shout through one, whisper into the other and keep well in the middle of the third. The Air Ministry was never sufficiently assertive.

It seemed to remain remote and aloof, a brooding Buddha enshrined in a flat-roofed temple at the bottom of Kingsway, summoning only into daily communion numerous acolytes in the shape of aircraft designers, constructors and engineers, the shuffling of whose feet resounded along the corridors of the Temple throughout the hours of daily worship. But of a clarion call to the innumerable throng of unbelievers outside the Temple there was none.

The God was silent, the oracle was dumb and so far not one of the attendant acolytes had summoned up sufficient courage to prod the Deity into a pained, surprised, but at least vocal, activity. He said that he would like to see the God unbend and walk more among men instead of only making one pilgrimage a year to Hendon.

For instance, the Air Ministry wasted innumerable opportunities of turning the public interest in anything novel to good account. It conducted a remarkably fine Service flight through Africa and back, and brought four machines back to this country to absolute schedule. Such a concerted effort had never been done before in the Service aviation of any country.

The Service graciously permitted the public through its representatives the Press to see the four machines alight on the water, an episode that it could not keep secret, but it refused to allow any account of the flight to be given by its responsible leader at the psychological moment of the triumphant return, but merely allowed them to see the leader having his hand shaken by a high official of the Royal Air Force.

Months afterwards it issued a most interesting detailed account which completely missed the popular tide. Had an interview with the commanding officer been given, more publicity and one more lesson in the value of air power would have been absorbed by the public.

He paid a tribute to the valuable work done by Sir Samuel Hoare in his recent flight.

Mr. Colebrooke, although once an officer in the R.A.F. and now a representative of that most respectable of all papers, *The Times*, apparently quite fails to see the vulgarity, and consequent detriment to discipline and to the tone of the Air Force, of interviews with serving officers. And he also seems to fail to see that the Air Force is not merely the Advertising Agent for British Aviation. The Cape Flight did in fact get all the publicity which it needed and rather more than it liked in some ways. Sir Samuel Hoare's flight is another matter. He is a civilian and a politician, and there is every reason why his flight should be advertised.—C. G. G.]

Mr. Colebrooke said also that the Aircraft Industry had been very narrow in its outlook. The industry had a priceless chance each year of interesting the whole nation in flying by supporting the Round-Britain race for the King's Cup with a multitude of aircraft. The opportunity had been frittered away until the Race was in danger of becoming a mere local event with only a few lines of publicity.

He said a lot more might be done to assist private flying and the Air Ministry should open free all Government-owned and controlled aerodromes to private aircraft and should offer storage facilities for the night at ordinary motor-car rates.

A bolder policy should be adopted about the Schneider Cup (presumably he was referring to the Schneider Trophy). The Air Ministry should come out into the open and say plainly that Great Britain wanted to have the Cup and meant to go on until it got it. The Press could then arouse the sporting instinct of the British public.

It was time that the Air Ministry each year allocated a moderate sum to the carrying out of some outstanding flying performances, either in co-operation with the constructors or independently. The loan of a machine, a grant to cover expenses and some other use of Government facilities would go a long way probably to make these flights possible at relatively small expense.

The only really expensive item was the Schneider Contest, but here again present expense must be faced to ensure a future dividend.

He asked the S.B.A.C. whether they have not, like the Air Ministry, buried their talent in the ground instead of taking it in the air, and suggested that they equal with the Air Ministry might unbend a little and explain to the Press what they wanted so that the Press could co-operate.

He asked could a little concerted effort be made before next year to make the King's Cup Race a really national vehicle for air propaganda. He suggested, in conclusion, that everybody interested in Aviation, from the Air Ministry downwards, should devote more attention to speeding up the education of the British public in aviation.

Then followed a discussion in which other people either agreed or failed to agree. Mr. Handley Page, following, said that his great ambition in life was to become the Editor of *THE AEROPLANE*. He made his usual Biblical references and he said that aeroplanes had a bond of sympathy with all men since the War in that they had, as Mr. Colebrooke said, no visible means of support.

Lord Thomson, as usual, made a very able Chairman and added greatly to the gaiety of the proceedings.

THE ITALIAN ARMED FORCES.

Some very interesting changes are being made in the High Command of the Armed Forces of His Majesty the King of Italy. General Badoglio, hitherto Chief of the General Staff of the Army, has now been appointed Chief of the General Staff of the Army, Navy and Air Force (*Regia Aeronautica*), and has under his orders three Chiefs of Staff, one for each of the Services.

General Piccio, famous during the War as a fighting pilot, and well known as the first Italian Air Attaché in Paris, who has been Chief of Staff of the *Regia Aeronautica* since its formation, has resigned and has been replaced by General Armani, who during the War was an "Ace" of bombing.

General Badoglio's personal staff and executive officers include officers of the Army, Navy, and Air Force, so that each Service is properly represented. It should be noted that the Chief of the General Staff need not necessarily be an officer of the Army, but may be, according to circumstance, an Admiral of the Navy or a Marshal of the Air Force.

As such drastic changes as these have already been made, one would not be at all surprised to see a Ministry of Armed Forces created in Italy before long. Under the leadership of the great Mussolini New Italy is doing things which normally could only be done in a perfectly new country, unhindered by precedent or prejudices. It must be said that most of these revolutionary experiments have met with considerable success. Therefore this re-arrangement of the High Command of the Italian Armed Forces should be watched closely.

In this country the objection to a Minister of Defence is that he might favour one of the three Services and that the others might suffer in consequence, whereas with three separate Cabinet Ministers, each fighting to get as much as possible out of the Chancellor of the Exchequer, there is a better chance of each Service getting its fair share.

A similar argument applies against a single Chief of the General Staff. If he were an aviator he might favour the using of air force to the disadvantage of the forces operating at sea or on the land. Whereas, when there are three Chiefs of Staff, each with his own political Minister to back him, there is continual competition. And "Competition is good for Trade."

General Armani has had wide experience of men

and material. He won four medals during the War 1915-18, and holds the Italian record for number of bombing raids over enemy territory. He has written a very good book on the exploits of his *squadriglia*. And he has the reputation of being a very good-natured man who never loses his temper, a most desirable quality in a Chief-of-Staff.



THE NEW CHIEF OF STAFF OF THE REGIA AERONAUTICA. — General Armani, a famous leader of bomb raids during the War 1915-18.

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The Aeroplane, Jan. 5th, 1927.

"Flight" photograph

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CIVIL FLYING IN THE U.S.A.

On Jan. 1 all civil flying in the United States came under the control of the newly-formed Aeronautical Branch of the Department of Commerce. The head of the new department is Mr. William P. MacCracken, Jun.

The Aeronautics Department will perform functions similar to those of the British Air Ministry. Regulations for the control of civil flying and air navigation have been drawn up. The Department will issue licences to all aircraft employed in inter-State communications after examination by engineers employed by the Department.

The class of licence will depend on the duties of the aircraft for which the licence is granted. All design and construction will be subject to certain specified standards. For factors of safety aircraft will be divided into five classes ranging from aeroplanes of a total weight not exceeding 2,500 lbs. to aeroplanes of 14,000 lbs. and over. All new aircraft must undergo type-test after official examination of the design and specification. All aircraft constructed to approved designs will be subject to periodical inspection.

The licence issued after type-test will be valid for one year, but daily inspection of aircraft in the public service is provided by the regulations.

All civil pilots must submit to medical examination and pass tests in navigation, air regulations and other kindred subjects before being granted licences.

Although the regulations are now nominally in force, a period of grace up to June 30 is allowed, to give all concerned time to make provision for their observance.

THE FLIGHT ROUND THE ATLANTIC.

On Feb. 22 Colonel the Marchese de Pinedo, who is attempting to fly round the Atlantic Ocean on a Savoia 55 flying-boat (two 550 h.p. Isotta Fraschini Asso engines) left Porto Praia, Cape Verde Islands, at 01.00 hours. At 14.45 hours he passed over Fernando Noronha en route for Natal, Brazil. He sighted Natal at 15.55 hours, but decided not to alight owing to a very rough sea and the absence of suitable sheltered water.

He thereupon returned to Fernando Noronha, where he alighted at 17.00 hours, completely out of petrol. He was towed to a sheltered anchorage by a Brazilian cruiser.

The distance from Porto Praia to Fernando Noronha (1,495 miles) was covered in 15½ hours at an average speed of 153 km.p.h. (95 m.p.h.). This indicates strong head winds, as the cruising speed of the machine is well over 100 m.p.h.

On Feb. 21 he flew from Fernando Noronha to Pernambuco via Natal.

On Feb. 25 he arrived at Bahia at 14.58 hours, from Pernambuco.

On Feb. 27 he flew from Bahia to Rio de Janeiro (740 miles). The crowd assembled to greet him was so great that the police had difficulty in clearing a way for the automobile which carried him to an official reception.

On Feb. 28 he alighted on the lake at Santo Amaro, near Sao Paulo, at 11.15 hours, and later in the day proceeded to Santos.

QUICK COMMUNICATION.

There arrived at this office on Monday, Feb. 28, a postcard from Capt. T. A. Gladstone and a copy of *The East African Farm and Home Journal* of Nairobi, from Mr. Hugo Dunkerley, the Editor, the postcard having been posted at Kisumu on Feb. 15 and the paper at Nairobi on Feb. 13. As the London Post Office does not now postmark mail matter on arrival, for all one knows they arrived in London on Saturday or Sunday, but in any case, fifteen days from Nairobi and thirteen days from Kisumu is a very great improvement on the four or five weeks which is usually taken by letters by land and sea. Such quick communication ought to be a very distinct advantage to trade in Central Africa.

AN HISTORICAL AIR FILM.

For some time past rumours have been going the rounds that the Air Council are concerned in the production of a film dealing with the work of the Flying Services during the War 1914-18.

The originator of the idea is Mr. Claude D. Soman, who himself served in the R.A.F. during the war, and is now managing director of Film Exploitations Ltd., 90, Wardour Street. Mr. Soman realised that if such a film is to be of value he must have the co-operation of the Air Ministry. Accordingly he applied some months ago to the Air Council for permission to make a film with their approval, and although the works of the Air Ministry are exceeding slow there is every reason to believe that such permission will be granted to Mr. Soman.

One foresees that one of Mr. Soman's chief difficulties will be to find ancient war machines such as the early Blériot type XI, Longhorn and Shorthorn Maurice Farman's, Henri Farman's, B.E. "Bloaters" and "Hungufins."

Mr. Soman is exceedingly anxious to get detail work correct, and so the film when produced is likely to be a very valuable contribution to the history of the War 1914-18.

THE STATE OF THE FRENCH AIRCRAFT INDUSTRY.

One regrets to note that the *Société Industrielle des Metaux et du Bois* (S.I.M.B.) has been compelled to close down. This firm was established during the latter part of the War 1914-18 as the *Etablissements A. Bernard*, but in 1922 was reconstituted under the above title with M. Hubert as chief engineer.

At the 1922 Paris Salon this firm exhibited a beautiful all-metal cantilever single-seat monoplane which, while unpractical from certain points of view, was the forerunner of the S.I.M.B.-Bernard racing monoplane. On Dec. 11, 1924, this machine, flown by Adjudant Bonnet, put up the World's Speed Record to 448.17 kms.p.h. (278.31 m.p.h.) which record still stands.

This firm has concentrated on the development of single-seat pursuit aircraft of particularly clean design. But these apparently failed to fulfil the requirements of the military services.

The troubles experienced by French producers of pursuit aircraft in keeping pace with the ever-changing conditions of the *Section Technique*, and the lack of orders placed since 1918 for modern pursuit aircraft by the French Government, are reflected in this failure, as well as in that of the Dewoitine Company, another single-seat fighter specialist, which is reported to be on the borders of extinction.

If it were not for the heavily-subsidised foreign orders undertaken by a proportion of the French industry at cut prices, it is quite possible that many other firms would be compelled to close down.

The opinion has been expressed by various competent French aviation authorities that the French Aircraft Industry is too big. Roughly there are thirty-six aircraft constructors and ten aero-engine makers. In order to keep this huge industry alive it is necessary to spread the comparatively small annual aircraft constructional appropriation over the whole industry in the form of small experimental orders. As there is no restriction to the formation of mushroom concerns with a one-room administrative office and the use of some other firm's factory space, this form of placing orders is hard on those old-established firms with war-time mass-production factories.

It is bad policy to throttle private enterprise and to discourage the birth of new ideas that might emanate from the younger generation of aeronautical students. But it would seem to be time for the French authorities to stabilise their aircraft industry for the time when the value of the French franc will not permit the unfair competition that exists to-day in the foreign market. Otherwise the industry itself will find its own level, with the possible exclusion of the older-established firms who may be driven out by their heavy overhead charges rather than by the lack of quality of their productions.

AN AIR LEAGUE OF INDIA.

Following on the interest aroused by Sir Samuel Hoare's flight to India, and Air Vice-Marshal Sir Sefton Branker's recent speech at the Karachi (Cosmopolitan) Club, the leading residents of Karachi, under the aegis of Sir Montagu Webb, founded the Air League of India on Feb. 22. According to *The Times* :—

The objects of the League are to encourage (1) public interest in aviation in every possible way; (2) the fullest development of civil aviation in India; (3) the opening of air services between the chief towns and ports of India, and between India and other countries; (4) the provision of more aerodromes, airship stations, seaplane bases and other necessary equipment and organisation; (5) the development of the aircraft industry in India as far as possible with Indian capital; (6) the training of Indian personnel in all branches of aircraft manufacture and operation; (7) the provision of additional funds for the above objects and for experiment and research.

Two Mussulmans have offered to contribute 2,000 rupees (£150) each and a Parsee has promised a donation of 5,000 rupees (£375).

THE U.S. AIR MAIL.

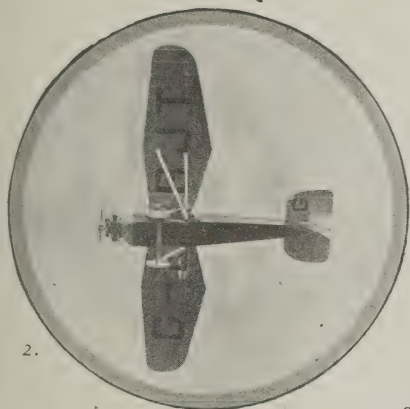
The mileage covered on the U.S. Air Mail routes increased 126 per cent. during the six months ending Dec. 31, 1926, as compared with the corresponding period in 1925.

Statistics on the number of letters carried on all the mail routes are not yet available, but 11 per cent. more letters were carried on the Government-operated routes, that is, the Transcontinental and the New York—Chicago night mail services.

For the six months ending Dec. 31, 1926, the number of miles flown and the number of the letters carried on Transcontinental route were fewer than during the same period in 1925, but the mileage flown on the New York—Chicago night service increased by 74,000 miles, and the number of letters carried increased by 75 per cent.

BOURNEMOUTH EASTER RACES.

Air Races will take place at Ensburry Park Racecourse, Bournemouth, on Good Friday, Saturday and Easter Monday. The prizes will amount to £400 and full particulars will be issued shortly.



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Our designs comprise all types from private single seaters to large twin engined bombing machines.

In these days road travel is anything but pleasant. By owning a light passenger machine you can recapture the joys of travel. We intend to publish shortly particulars of Widgeon III, a light passenger Monoplane which will be within reach of the man of moderate means. The machine folds, and will go comfortably into an ordinary garage. Widgeon II, the parent machine was the fastest machine in the Grosvenor Cup Race this year, with an average speed of 105.5 m.p.h.

We are supplying numbers of machines to the Royal Air Force both at home and abroad. We have our own 4 ft. wind channel for testing models, and our extensive aerodrome is situated by the side of the works for testing the finished machines. Enquiries are solicited for aircraft for all purposes.

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THE FLYING CLUBS.

THE NORFOLK AND NORWICH AERO CLUB.

A demonstration of flying in connection with the scheme to form a Flying Club in Norwich took place at the Mousehold Aerodrome, Norwich, on Feb. 25.

The aerodrome organisation was in the hands of Mr. I. D. North and Sq. Ldr. C. A. Rea, of Boulton and Paul Ltd., the owners of the shed accommodation at the aerodrome. In spite of the fact that low clouds, rain and fog were general throughout the country a very good number of machines turned up to give the Club a good send-off.

The Royal Air Force showed its usual friendly and sporting spirit and the proceedings started with a demonstration of formation flying by No. 7 (Bombing) Squadron from Bircham Newton. The squadron flew in various formations over the city and district for about an hour and before it left for home one machine with Sq. Ldr. E. V. Grenfell, M.C., on board left the formation and landed on the aerodrome.

Martlesham sent a mixed contingent consisting of a Boulton and Paul Bugle, flown by Flt. Lt. Plenderleith, a Gloster Gamecock, flown by Flt. Lt. Pope, a Blackburn Bluebird, flown by Sq. Ldr. England, and a D.H. Moth with slotted wings, flown by Flg. Off. Somers. Flt. Lt. Pope put up a delightful exhibition of stunt flying on the Gamecock in spite of the handicap of incessant rain which limited him to aerobatics to a few hundred feet of the ground.

Other visitors who defeated the weather were Flt. Lt. Crawford and Mr. R. H. Bound, of the Hampshire Aero Club, who flew a Moth from Hamble, and Mr. B. Hinkler, who brought Mr. John Lord from Hendon on a Lynx. Avro. Mr. Parkinson and Flg. Off. Atcherley flew a Service Moth from the C.F.S. at Wittering and Mr. Broad, of the De Havilland Co., brought Col. I. A. E. Edwards, of the Department of Civil Aviation, from Stag Lane. The London Aeroplane Club was strongly represented by Lady Bailey on her own Moth and Mr. Sparks on a Club Moth and Mr. Irving, of parachute fame, brought Major fiske in his own Moth. The solitary host was a Boulton and Paul P.9 with a Raf engine, flown by Sq. Ldr. C. A. Rea.

Flt. Lt. Comper, from Cranwell, on the Cranwell IV, got as far as Swainsthorpe, about six miles from Norwich, where he had a forced landing and damaged his machine in a misunderstanding with a Norfolk hedge. Wing Cdr. Blackburn started from Martlesham, but was forced to return. Mr. Bell, of the Newcastle Club, started, but had to return owing to fog. Mr. Barnes and Mr. Wayman, of the Yorkshire Aeroplane Club, landed at North Elmham, near King's Lynn, for petrol, having been delayed by fog, and damaged their machine in starting again. The whole thing was a triumph of perseverance and good sportsmanship.

On top of their efforts to arrive at this bleak spot all the Club pilots spent the long, wet afternoon cheerfully taking scores of people for joy-rides "without fee or reward." Mr. Sparks took up 30. The total number of spectators must have been something under 500, doubtless owing to total lack of transport, as the possibility of doing business had "never crossed the minds" of the Norwich charabanc owners. As these spectators stood the whole time in the rain without any shelter, and most of them walked or push-biked to and from their homes, they must have been whole-hearted enthusiasts.

THE CITY MEETING.

A public meeting was held in Blackfriars Hall, Norwich, in the evening after the demonstration, with the object of approving the formation of a Norfolk and Norwich Flying Club. The Lord Mayor, Mr. C. R. Bignold, was in the Chair.

The Chairman said that the Sheriff (Mr. A. A. Rice, M.C.) was responsible for the idea of forming a Norfolk and Norwich Flying Club. He went on to say that he considered that aeroplane services in Norwich would be a great aid to commerce, particularly with the Midlands, owing to the poor train service between East Anglia and the Midlands. He pointed out that the Aircraft Industry was already established in Norwich and said that he hoped that some machines for the Club would be built by Boulton and Paul Ltd. to decrease the unemployment in the City.

He explained that the aerodrome at Mousehold was owned by the Corporation and leased to the War Office. Shed accommodation at the aerodrome and the services of trained instructors and mechanics had already been offered to the Club. [One understands that this offer of temporary help is from the test staff of Boulton and Paul Ltd. The shed accommodation also belongs to this enterprising and air-minded firm.]

The Lord Mayor went on to say that he hoped that financial assistance would be forthcoming from the Air Ministry as he thought that Norwich could be developed as an Air Port.

Colonel I. A. E. Edwards, M.C., Deputy-Director of Civil Aviation, said that the formation of Light Aeroplane Clubs was a matter of vital national importance. The development of Civil Aviation was the concern of everyone in the Empire. Time was the important factor in travel and the only thing which could save time was aviation.

Col. Edwards said that there were six subsidised clubs which had 1,042 members, of whom 90 had "A" licences and 8 "B" licences. They had flown 9,000 hours. There were also 6 unsubsidised clubs and a further 8 under contemplation. The Air Ministry was fully aware of the necessity for establishing these clubs.

The Lord Mayor said he had just received a telegram from the Yorkshire Club representatives saying that after many efforts they had been forced to give up near King's Lynn. At this moment the two representatives of the Yorkshire Club made a dramatic entry into the Hall, and amid the sort of applause that is usually reserved for the local Soccer team, were led, blushing and looking somewhat the worse for wear, onto the platform.

Mr. Harold Perrin, Secretary of the Royal Aero Club, told the audience what the subscriptions were for the London Aeroplane Club and said he hoped the Air Ministry would help the Norwich Club.

Lady Bailey wished the Club the best of luck. Mr. C. G. Grey, Editor of THE AEROPLANE, said that considering the weather it was extraordinary how many people had flown down. Describing his own painful journey on the L. and N.E. Railway, followed by his dangerous journey from the station to the hotel in a partly-disintegrated cab of one horse-power, he said he thought it was about time Norwich had a flying club and an air service. He thought Norfolk was almost perfect flying country and according to

the railway posters it had the best weather in the British Isles. He congratulated Norwich on its Lord Mayor. He was just recovering from the surprise of finding so young a man, for he had expected to find an old man with a long white beard and a strange enthusiasm for aviation. He had never met a Lord Mayor before without a Corporation.

Although he was always in favour of looting the Government whenever possible, he thought Civil Aviation should fly by itself and suggested that the citizens of Norwich should put their hands into their own pockets.

Mr. Sparks said that he had carried 60,000 passengers in the air and not one of them had ever been sick.

A resolution that a Norfolk and Norwich Aeroplane Club should be formed was proposed, seconded and carried unanimously. This was followed by verbal bouquets in the form of grateful thanks to everybody concerned with the Meeting, including Mr. Holmes and Mr. Hardy, who between them offered to give the Club a Moth.—C. M. MCA.

WEEKLY REPORTS.

The London Aeroplane Club.

Report for week ending Feb. 27.

Flying time 20 hrs. 55 mins. Instructors:—Messrs. F. G. M. Sparks, A. S. White, C. D. Barnard, and R. W. Reeve.

Dual Instruction:—D. S. Hewitt, R. P. Cooper, Lady Bailey, J. Simpson, H. Samuelson, A. J. Mulder, Mrs. Christie, L. W. Gibbens, H. Leighton-Crawford, A. J. Richardson, J. Crammond.

Solo:—E. D. Moss, Miss O'Brien, H. Spooner, C. R. Campkin, H. Solomon, W. Roche Kelly, M. L. Bramson.

Joy-rides:—C. R. S. Beale, H. H. Whiteside, Miss F. O. Gambe.

Mr. F. G. M. Sparks, on a Club Moth, used the flight to Norwich to give instruction in navigation to R. P. Cooper.

Lady Bailey also flew to Norwich on her own Moth with Capt. H. Spooner as passenger.

The Annual Dance will be held on Tuesday, Mar. 22, at the Spring Gardens Gallery, Spring Gardens, Trafalgar Square. Members will receive a notice giving full particulars.

The Lancashire Aero Club.

Report for week ending Feb. 26.

Total flying time for week 19 hrs. 10 mins., made up as follows:—Dual with Mr. Brown:—Messrs. Caldecott 2 hrs. 10 mins., Nelson 1 hr. 25 mins., Miss Brown 1 hr. 15 mins., Messrs. Dickinson 40 mins., Gatterall 35 mins., Newton 35 mins., Musgrave 30 mins., McNair 25 mins., Goodyear 20 mins., Miss Emery 20 mins., Messrs. Rodman 20 mins., Hartley 20 mins., Meades 20 mins., Forshaw 15 mins., Dobson 15 mins.

Dual with Mr. Cantrill:—Mr. Goodyear 30 mins.

Solo:—Messrs. Costa 55 mins., Michelson 55 mins., Twemlow 35 mins., Slater 35 mins., Lacayo 30 mins.

Joy-rides:—With Mr. Cantrill:—Mr. Caldecott 2 hrs. 10 mins., Mrs. Bell 10 mins., Messrs. Kelcher and Bell 10 mins. each, Mrs. Ross 5 mins. With Mr. Lacayo:—Mr. Hartley 50 mins.

Test flights:—1 hr. 40 mins.

On Friday morning Mr. Cantrill, accompanied by Mr. Caldecott, made a determined attempt to take MQ over to the Norwich meeting. Low-lying clouds made the crossing of the Pennines impracticable and after two hours' flying the attempt had to be abandoned. We were very sorry to disappoint Norwich and hope that they had a successful meeting in spite of the weather.

The current number of a monthly aviation paper which shall be nameless describing a new aerodrome to be constructed at Brighton, says:—"The length of the aerodrome in the direction of the prevailing wind will be 75 yards, and the surrounding country is free from obstructions. When the aerodrome is ready it should prove popular with members of light aeroplane clubs..."

We can only say that, despite the freedom from obstructions, we hope this club will be equipped with Alpha-Gosports before beginning to use the said aerodrome regularly. We shall then be able to meet the Hampshire Club, flying on a formation of Auto-giros led by Señor de la Cierva, and have a jolly picnic there.

The Newcastle-upon-Tyne Aero Club.

Report for week ending Feb. 27.

Total flying time 90 mins., all solo, ending in Mr. Irving's crash. As Mr. Irving was hurt, having a broken arm and bruises, the report of the Inspector of Accidents must be awaited before particulars can be given.

The Club sympathises with the Yorkshire Club in its crash near Norwich.

MAY, 1927.

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The Yorkshire Aeroplane Club.

Report for week ending Feb. 27.

Total flying time for week:—3 hrs. 5 mins., made up of 55 mins. solo, 2 hrs. dual, and 10 mins. tests.

Messrs. Lax, Rhodes, Batcock, Ling and Brown flew dual. Messrs. Mann, Norway and Dawson flew solo.

With the exception of 30 mins. flying on Wednesday there was no flying during the week until Sunday, partly owing to the weather and partly to the temporary indisposition of L.S.

On Friday, Mr. Wayman, with Mr. Barnes as passenger, set out for Norwich in NN in a gallant attempt to fulfil a promise to attend the inaugural meeting of the proposed Norwich Flying Club. They intended to start in the early morning, but were considerably delayed by fog and bad weather generally. In spite of little improvement they determined to win through if possible and left the aerodrome scarcely able to see from one end to the other at 14.30 hrs.

After a thoroughly uncomfortable flight, during which they continually ran into banks of fog and rain, and after being obliged to land twice to find their way, they eventually found themselves running short of petrol when only about twenty miles from Norwich. They landed near a garage at Elmham, refuelled and set off once more. But owing to heavy going on a sodden field had difficulty in unskidding, and just failed to clear the boundary hedge in spite of a run of nearly 300 yards. The undercarriage caught the hedge and the machine tipped over on its nose on the other side and was damaged to such an extent as to end the flight.

Messrs. Barnes and Wayman, however, fulfilled their promise to attend the meeting and arrived soon after 9 o'clock, having been conveyed the remainder of the journey by road in a car sent out by the Lord Mayor of Norwich.

A member of the Club, Mr. Ely, attended the meeting throughout the day, having arrived the night before by train, and a Yorkshire machine, the Blackburn Bluebird, in the hands of Sq. Ldr. T. H. England and of the Marlesham Experimental Station, was busily engaged in demonstration and passenger flying throughout the day.—G. C. F. E.

The Hampshire Aeroplane Club.

Report for week ending Feb. 25.

Total flying time 10 hrs. 50 mins. Instruction flying 4 hrs. 10 mins. Solo flying 5 hrs. 55 mins. Joy-riding 25 mins. Test flights 20 mins.

The following members had dual:—Lieut. A. R. Cadell 50 mins., A. R. Mellor 45 mins., F. G. Molony 35 mins., W. G. B. McKechie 20 mins., Wing Cdr. Wyllie 25 mins., Capt. H. T. Molyneux, M.C., 50 mins., the Hon. H. R. Grosvenor 10 mins., and P. Kerry 15 mins. The soloists were:—Señor de la Clerva 1 hr. 20 mins., Lieut. A. R. Cadell 20 mins., Mr. W. G. B. McKechie 15 mins., Mr. R. H. Cooper 5 mins., and Flt. Lt. Crawford 3 hrs. 55 mins.

Miss Youell and Mr. Beagley had joy-rides with Mr. Thomson. On Friday, the 25th, Flt. Lt. Crawford, with R. H. Bound in the front cockpit, flew to Norwich to take part in the "airmindedness" campaign on the occasion of the formation of the Norwich and Norfolk Flying Club.

Leaving Hamble at 09.00 hrs. in a drizzling rain, they hedge-hopped to Stag Lane, where they landed and were immediately surrounded by Press photographers who waded out through the top twelve inches of the aerodrome and snapped them eagerly. Seeing the wondering expression of Flt. Lt. Crawford's face, the leader of this band inquired deferentially, "You are the Master of Sempliff, Sir?" The gathering waded back, and we do not expect that those photographs will be published.

After refuelling, they took off and proceeded to Norwich, which was reached at hrs. just as a flight of Virginias were demonstrating over the city. They joined the party and, after inspecting all corners of Norwich from the air, landed at Mousehold aerodrome and were immediately greeted by kindly officials who seemed determined to give them anything they wanted, including a white armband with the letters C.P. stencilled on.

This armband permitted them to stroll about on the course, but no one was able to tell them what C.P. meant, although Mr. Whitlock, the "technical man" at Messrs. Boulton and Paul's, suggested that it meant Centre of Pressure because they wandered all over the place.

The remainder of the meeting and the Lord Mayor's dinner will probably be described elsewhere in this paper, so it is not necessary to give particulars here. However, they greatly admired the sporting action of the two gentlemen who started the club off by giving an aeroplane, and wish the new club all success.

The return to Hamble on Saturday was very trying owing to bad bumps and the after effects of the "gathering" on the previous night, but Flt. Lt. Crawford did not seem to mind the weather and they landed at home at 17 hrs.—R. H. B.

The Suffolk Aeroplane Club.

Considerable interest has been aroused in East Anglia by the formation of the Suffolk Aeroplane Club, which was inaugurated several months ago.

The Suffolk Club have purchased a 1927 Blackburn Bluebird side-by-side-seater machine. It is generally recognised that this type is invaluable for instructional purposes and certainly more suitable for cross-country flying. The low stalling speed of this machine makes it particularly safe.

Although faced with extreme difficulties the keen and enthusiastic Committee have succeeded in establishing the first East Anglian Aero Club, and it is gratifying that Suffolk should lead the way.

The Norwich Club is very fortunate in having the support of

their patriotic and far-seeing citizens. The gift of an aeroplane by Mr. Holmes and Mr. Howard is an example to follow.

To complete the success of the Suffolk Club it will be necessary to secure a second aeroplane in the near future, as the pilot-membership is steadily increasing.

Sir Charles Wakefield recently subscribed £150 towards the purchase of the first Suffolk machine. In view of the fact that he is the President of the Lancashire Aero Club, which naturally has first call on him, his great generosity to the Suffolk Club is indeed gratifying.

AUSTRALIAN CLUBS.

The Sydney (N.S.W.) Flying Club.

At the first Committee Meeting held during 1927 it was announced that H.E. the Governor, Admiral Sir Dudley Rawson de Chair, K.C.B., M.V.O., had consented to become Patron of the Club. Of the decisions of the Committee, the first important one was the reduction in the charge for solo flying from £2 10s. to £1 10s. per hour. Also it was decided that because of the number of pupils waiting to receive instruction the Club should immediately order one more Moth and employ an assistant instructor and an assistant ground engineer.

The Club House is ready for occupation. Besides the usual facilities for meals, etc., the floor of the main room has been prepared for dancing, and a garden with lawns, a tennis-court and a clock golf green are being laid out.

The Club was granted a free stand at the Sydney Motor Show, held on Jan. 14-22, and exhibited a Moth, a spare Cirrus engine, a six-cylinder Curtiss engine, a Curtiss-Reed airscrew, an uncovered Curtiss wing, two partly-finished airscrews and a wing tip float of Australian construction, lent by Wing Cdr. L. J. Wackett, D.F.C., A.F.C., R.A.A.F., and a number of scale models of well-known types of aircraft, lent by Messrs. W. J. Hickey and J. V. Connolly.

Messrs. G. N. Mills and H. V. Chedgely flew solos on Jan. 11.

Report for week ending Dec. 11, 1926.

Total flying time 20 hrs. 45 mins., of which 10 hrs. 45 mins. was dual instruction.

Report for week ending Dec. 18.

Total flying time 17 hrs. 35 mins., of which 5 hrs. 50 mins. was dual instruction.

Report for week ending Dec. 25.

Total flying time 13 hrs. 5 mins., of which 5 hrs. was dual instruction.

Report for week ending Dec. 31.

Total flying time 4 hrs. 35 mins., of which 2 hrs. 5 mins. was dual instruction.

The Longreach Flying Club.

On Dec. 27 the Longreach Light Aeroplane Club, which is being operated by the Queensland and Northern Territory Aerial Services Ltd., opened at Longreach aerodrome.

The School possesses one D.H. Moth, and the first instructional course consists of four pupils with a further four on the waiting list for the next course.

Mr. C. Matheson is the instructor and he reports good progress of the pupils under him. Flying starts at 05.30 hrs. and up to Dec. 31 24 flights were made in a flying time of 9½ hrs.

The D.H. Moth is the first of its type to be imported into Queensland and it has naturally excited much interest and admiration at Longreach.

WITH PLECTRUM TO PATIALA.

Mr. B. S. Leete and Mr. T. N. Stack, who are at present in India with two D.H. Moths and a banuleje, have been invited to visit Patiala as guests of the Maharajah. They will later visit Lahore, and it is expected that they will leave India for England some time during March.

On Feb. 25 Mr. Stack took up a cinematograph operator, who obtained the first films of New Delhi from the air.

They have given many passenger flights in Delhi, including four after the Royal Air Force Display, which latter flights produced £80 for R.A.F. charities.

Their flight to India in D.H. Moths without previous preparation, has brought them congratulations from Marshal of the Royal Air Force Sir H. M. Trenchard, Chief of the Air Staff, Sir Phillip Sassoon, Under-Secretary of State for Air, Sir Sefton Brancor, and many others.

"FLYING FOR ALL."

Some time ago a series of very good articles entitled "Flying for All" appeared in *The Morning Post*. With the idea primarily of popularising flying in Scotland, Mr. R. C. Donaldson, of Jebb Bros. (Glasgow) Ltd., suggested to C. C. Wakefield and Co. Ltd. that this series of articles might with advantage be reprinted and distributed wherever there was a possibility of forming a light aeroplane club or of stirring up enthusiasm for aviation. Mr. R. W. Graham, Managing Director of C. C. Wakefield and Co. Ltd., was quick to see the soundness of this suggestion, and the result is that the articles, reprinted in a neat pamphlet form have now been produced, with the permission of *The Morning Post*.

Anybody who is wishful to spread interest in flying, more particularly in Club flying, among his or her friends, will do well to write to C. C. Wakefield and Co. Ltd., Wakefield House, 30/32, Cheapside, London, E.C.2, and ask for some copies of "Flying for All."

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THE R.Ae.S. ANNUAL GENERAL MEETING.

The attention of members of the Royal Aeronautical Society is particularly called to the Annual General Meeting which will be held in the Library, at 7, Albemarle Street, at 17.00 hrs., on Mar. 29.

A number of rules will come up for revision, and the Council will put forward proposed terms for amalgamation with the Institution of Aeronautical Engineers. These terms are set forth fully in the Journal for March.

(Signed) J. LAURENCE PRITCHARD (Secretary).

R.Ae.S. FORTHCOMING EVENTS.

Thursday, Mar. 16, "Man and the Machine," by Group Captain M. Flack, C.B.E., M.B., at the Royal Society of Arts, 18, John Street, Adelphi, W.C.2, at 18.30 hrs.

Thursday, Mar. 17, "Line Squalls," by Mr. M. A. Giblett, M.Sc., at the Royal Society of Arts, 18.30 hrs.

Thursday, Mar. 24, "German Commercial Air Development," by Major Wronsky, at the Royal Society of Arts, at 18.30 hrs.

Tuesday, Mar. 29, Annual General Meeting at 17.00 hrs., in the Library of the Society, 7, Albemarle Street, W.1.

Thursday, Mar. 31, "Recent Model Experiments in Aerodynamics," by Mr. E. G. Richardson, M.Sc., Ph.D., at the Royal Society of Arts, at 18.30 hrs.

The lecture by Herr Director Martin Wronsky, of the Luft Hansa, is a most important event. Herr Wronsky is the most important figure in German Civil Aviation, and besides being a specialist in traffic management is a financier, organiser and engineer of outstanding ability. His lecture should be largely attended.

THE I.Ae.E. HOUSE DINNER.

At the next House Dinner of the Institution of Aeronautical Engineers, which will be held on Mar. 4, Lieut.-Col. Moore-Brabazon, who has just been distinguishing himself again on the Cresta Run at St. Moritz, will take the Chair at the Engineers' Club, Coventry Street, W.1.

Mr. Frank Courtney has promised to open the discussion on the Auto-Giro. In view of his recent accident on a machine of that type his remarks ought to be particularly enlightening.

Tickets for the Dinner may be had on application to:—The Honorary Secretary, Mr. Norman J. Hulbert, The Institution of Aeronautical Engineers, 34, Broadway, Westminster, S.W.1.

THE R.Ae.S. AND THE I.Ae.E.

In the March issue of the Journal of the Royal Aeronautical Society the proposals for the amalgamation of the Institution of Aeronautical Engineers with the Royal Aeronautical Society are mentioned.

The subject has been under discussion by a joint committee of the two societies sitting under the chairmanship of Sir George Beharrel,

and this joint committee has arrived at an agreement as to the terms which shall be submitted to the members of each Society with the recommendation that the proposed amalgamation should be carried out.

The following are the recommendations:—(i) "The name and title of the amalgamated Society shall be 'The Royal Aeronautical Society,' with which is incorporated the Institution of Aeronautical Engineers." [This is a verbatim quotation from the official document. It suggests, as the name of the Institution of Aeronautical Engineers is not included within the inverted commas which mark the official name of the Society, that the name of the Institution may be dropped from subsequent official documents of the Society.—C. G. B.]

(ii) In the amalgamated Society the title of "Honorary Member of the I.Ae.E." shall be dropped. Hon. Members and Members of the I.Ae.E. shall have the option of describing themselves as either Members of the I.Ae.E., or Fellows of the R.Ae.S.

Associate Members of the Institution shall have a similar option of retaining the existing description or adopting that of Associate Fellows of the R.Ae.S.

(iii) A committee shall be set up as soon as possible to consider amendments to Rules and to make recommendations. This committee shall consist of an agreed Chairman and four members, two being present members of the I.Ae.E.

(iv) The amalgamation, as above defined, shall come into force on July 1, 1927, and the representatives of each party shall at once seek authority for this purpose. The Council of the Amalgamated Society shall consist of a Chairman and twenty members, of whom thirteen are to be present members of the Council of the R.Ae.S., and seven members of the Council of the I.Ae.E. Seven members of the Council of the R.Ae.S. as it exists before amalgamation shall resign to make room for the representatives of the I.Ae.E.

(v) Pending amalgamation, the Honorary Solicitors of the two bodies shall act in a joint capacity to advise on any legal questions that may be raised.

FLYING IN AUSTRALIA.

On Tuesday, Feb. 22, Fl. Lt. J. Renison Bell, R.A.A.F., read a paper on "Aviation In Australia" before the Institution of Aeronautical Engineers.

The author expressed the opinion that if aircraft were animate bodies all of them would by a natural process of selection migrate to the country most suited to them, and that that country was Australia. And in the body of the paper is to be found quite a reasonable volume of evidence supporting the idea that Australia offers the most favourable ground at present for the exploitation of aerial transport.

It is not proposed to deal in any detail with this paper at the present. It is hoped in the near future to deal fairly comprehensively with the subject of Australian aviation as a whole in THE AEROPLANE, and to draw upon Fl. Lt. Bell's paper on that occasion.

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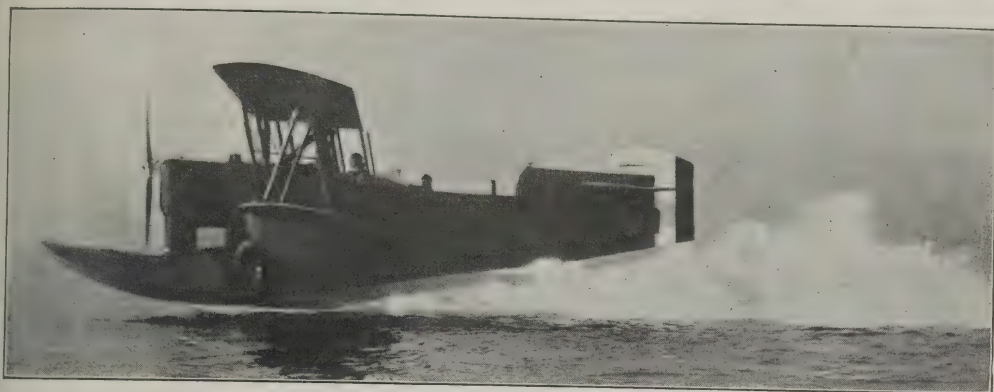
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BATTEN—Accomplished his Aerial Survey of the Rainy Lakes and the Canadian border with complete success—a feat the Army could not previously accomplish because it took an amphibian and a *good one* to do it.

McDONALD—Beat the records, for speed with load, of the World's best seaplanes with an Army Loening Amphibian, not only as a seaplane but carrying all its landing gear along in addition.

SCHILDAUER—Returned from Cuba, his hydrographic survey for the Navy successfully completed without a hitch, using the very same planes that Byrd flew in the Arctic.

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WYATT—Went up to Alaska with his fleet of Loening Amphibians —flew about fifty thousand miles without a single forced landing of any kind, and flew back down the Pacific Coast to San Diego, completing one of the most brilliant exploits in the annals of American Aviation, and with more than double the amount of difficult Survey work accomplished than had been thought possible.

MOST DIFFICULT of all aviation problems of National Defence giving serious concern to the authorities in Washington, is the development in America of Naval Aircraft that, when launched from the catapults, will land on the aircraft carrier—or when launched from the carrier will land and take off the water. The Loening Amphibian has the proud distinction of being to date the only aircraft of any type that has successfully and conclusively solved this problem.

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 7; Tuesday, 13; Wednesday, 16; Thursday, 10; Friday, 10; Saturday, 12; Sunday, 0.

IMPERIAL AIRWAYS LTD.:

London—Paris; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam: Machines 28, passengers 150, freight 10 tons.

AIR UNION:

Paris—London: Machines 18, passengers 23, freight 12 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 10, passengers 1, freight 1½ tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 12, passengers 13.

SABENA:

Brussels—London: Machines 0, passengers 0.

PRIVATE:

Machines 0, passengers 0.

Total number of trips by British Machines, 28, carrying 150 passengers. Foreign Machines, 40, carrying 48 passengers.

Comparative Figures:

Week ending Feb. 27:

Machines, 68; Passengers, 198; Crews, 160; Total personnel, 338.

Corresponding week, 1926:

Machines, 81; Passengers, 230; Crews, 101; Total personnel, 331.

Corresponding week, 1925:

Machines, 74; Passengers, 134; Crews, 89; Total personnel, 223.

Corresponding week, 1924:

Machines, 46; Passengers, 38; Crews, 72; Total personnel, 110.

Corresponding week, 1923:

Machines, 53; Passengers, 164; Crews, 102; Total personnel, 266.

Corresponding Week, 1922:

Machines, 45; Passengers, 81; Crews, 74; Total personnel, 155.

Corresponding week, 1921:

Machines, 30; Passengers, 32; Crews, 38; Total personnel, 70.

Croydon Notes.

On Wednesday, Feb. 23, Mr. Hinchliffe left Croydon at 07.00 hrs. for Cairo on the fourth of the De Havilland Hercules (three Bristol Jupiters) built for the Cairo—Karachi service. Among the passengers were Capt. and Mrs. Geoffrey de Havilland, Mrs. Hinchliffe, Mrs. Johnston (wife of the navigator), Mr. Herman Volk, of Brighton, the pioneer of civil seaplane stations, and another feminine passenger.

The other passenger was Lt.-Cdr. Congreve, R.N., a son of the late General Sir Walter Congreve, V.C., Governor of Malta. He travelled to Malta to see his father, who was then dangerously ill. By this means he was able to reach his father before he died.

The Hercules arrived at Marseilles on Wednesday evening, at Naples on Thursday, at Malta on Friday, at Benghazi on Saturday and at Cairo on Sunday. As it is only 3½ days' journey by air on to Karachi, the through service to India in 8½ days could be run with ease.

As soon as night-flying is introduced there should be nothing to prevent a through service to India by relays of machines and pilots in 4 days. The Cairo—Karachi service must at the best be an experimental service. But a 4-day service from England to India would be of very great value. All mails should go that way. And one hardly imagines that passengers would prefer to spend 3 weeks on the sea instead of 4 days in the air any more than they would spend 3 months in a sailing vessel instead of 2 weeks in a steamer.

The next and last Hercules will leave on or before Mar. 10. Mr. F. L. Barnard will be the pilot and Mrs. Barnard will be a passenger. The general utility of the lightish aeroplane was well illustrated on Saturday morning. Mr. Hubert Broad appeared from the S.E. on the Genet-Moth. He had flown in 1 hr. 50 mins. from Norwich to Sevenoaks with Lt.-Col. Edwards, of the Department of Civil Aviation, as passenger, and had landed in a field near his house at Sevenoaks. He then took off again and flew to Croydon, alighting in a sea of mud, for four gallons of petrol.

Being able to fill an aeroplane's tank with merely four gallons of petrol is rather a shock to people who are used to filling tanks with hundreds of gallons. However, this will undoubtedly please the petrol companies in view of the prophesied drying-up of all the oil wells.

A peculiarly mean theft was committed at the aerodrome during the week-end. At the gate of the public enclosure is a collecting-box screwed to a wooden chair into which those entering the enclosure put money for the local hospital. When the attention of everyone was centred on a departing machine some mean, sneak-thief pulled the box off the chair and got away with it. If he or she is ever caught red-handed one will not be very sorry for him or her.

A wonderful yarn was circulated to the Press on Monday by a news agency. It stated that orders had been issued to pilots and mechanics of French aeroplanes on the London—Paris route directing what was to be done in the event of an occupant of an aeroplane going mad in the air. At the first sign of madness he (or she) was to be bound hand and foot with cord. If this does not suffice, he (or she) was to be shot dead.

The Air Union state that no such instructions have been issued and it seems extremely unlikely that they have been contemplated, even in France.

But the whole matter raises an important question. Many people will hold that mere entry into an aeroplane is an act of madness in itself, so that all passengers should at once on arrival at an aerodrome be bound hand and foot. The stress department of the Air Ministry would certainly say that flying in any French aeroplane is an act of madness, for obviously anyone is mad who flies in a machine which is not airworthy. And no French machine has got a British Certificate of Airworthiness.

Still, if anyone is seen foaming at the mouth he or she is not necessarily mad. They might be either Mr. H. G. Wells and party chafing at unnecessary delays in air transport, or might merely be a party of Frothblowers at play.

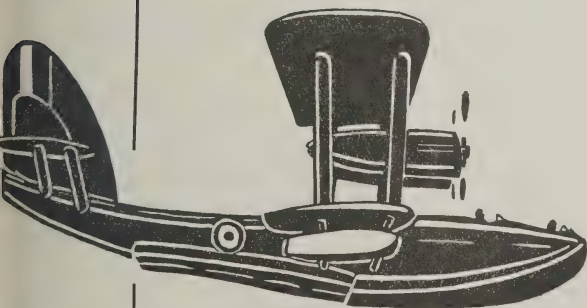
To-day, Tuesday, Mar. 1 (the day of the week concerning which there is an ancient legend which says that it is the busy day of THE

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AEROPLANE staff) the Air Ministry's weather people would seem to have torn off two pages of their calendar instead of only one, for there is a mixture of March winds and April showers. It is certainly up to Mr. Entwistle to put matters right.

A.D.C. Aircraft Ltd. are extremely busy. They are putting through a bunch of a dozen Martinsydes (among other things) for a foreign Government. They find that the timber in the machines which have been stored under ideal conditions is actually better than any new timber that can now be bought. The fuselages and wings need but little attention and when the machines are ready for delivery they are actually in better condition than brand new ones would be. Which is powerful testimony to the conscientious work of Martin and Handasyde.—G. D.

ANOTHER HERCULES FOR THE EAST.

On Feb. 27, the fourth D. H. Hercules (three Bristol Jupiter engines) allotted to the Cairo—Karachi service of Imperial Airways, arrived at Heliopolis. It left Croydon on Feb. 23 carrying six passengers and a crew of three.

On Mar. 2 King Fuad is to baptise the first Hercules employed on the Cairo—Karachi service, the *City of Cairo*.

LA LIGUE INTERNATIONALE DES AVIATEURS.

Through the munificence of Mr. Clifford B. Harmon, the *Ligue Internationale des Aviateurs* has instituted a series of trophies to be awarded annually by the various posts of the Ligue to the aviator who in the opinion of the Post Committee has put up the most meritorious performance of the year. The following list shows the holders of the various trophies for the ensuing year:—

Spain: Commandant Franco, for his flight across the South Atlantic.

Great Britain: Sir Alan Cobham, K.B.E., A.F.C., for his flights to Cape Town and back and Melbourne and back.

U.S.A.: Mr. Shirley Short, a U.S. Air Mail pilot, who has covered 235,754 miles in 2,382 hours since his appointment to the Air Mail route. During 1926 he flew for 718 hours, half of which was on the Chicago—Cleveland night route.

Holland: Mr. Geysendorfer, a K.L.M. pilot.

Japan: Capt. Abe, for his flight from Tokyo to London.

Belgium: Capt. Medaets, for his flight from Brussels to Leopoldville and back.

Switzerland: M. Mittelholzer.

Portugal: Commandant Sarmiento de Beires, for his flights from Lisbon to Casablanca and back and from Lisbon to Macao.

Italy: Major de Bernardi, the winner of the Schneider Trophy and the holder of the World's seaplane speed record.

France: Capt. Pelletier Doisy, for his flights from Paris to Peking and round the Mediterranean.

Denmark: Capt. Botved, for his flight from Copenhagen to Tokyo and back.

The Near East: Capt. F. L. Barnard, the Imperial Airways pilot, for inaugurating the air route to the East.

Sweden: Capt. Tornberg.

SPIRITUAL HELP.

M. Mittelholzer, who has just flown from Zurich to Cap Town on a Dornier Mercur seaplane, used straight Shell petrol without benzol or dope, and used Shell super-heavy oil throughout.

For the flight of a French Lioré-et-Olivier flying-boat (Jupiter) to Madagascar and back, Shell petrol was used for most of the outward journey and for the entire return trip.

MORTGAGES AND CHARGES.

SUPERMARINE AVIATION WORKS LTD.—Particulars filed of £500 debentures authorised Feb. 14, 1927, constituting a specific charge on land at Southampton, and all other the freehold and leasehold property of the Company and a floating charge on the Company's undertakings and other property, present and future, including uncalled capital, the whole amount being now issued.

NEW COMPANY.

BRITISH ANZANI ENGINEERING CO. LTD.—Private company. Registered Feb. 18. Capital, £5,000 in 2,000 10 per cent. cumulative preference shares of £1 each and 20,000 ordinary shares of 1s. each. Objects: To carry on the business of motor-car manufacturers, makers of aeroplanes, seaplanes, hydroplanes, motor-boats, flying-boats and gliders etc. The subscribers are: R. G. H. Plumet Greene, 16, Beaufort Gardens, S.W.3, gent., 1 preference share. A. G. Frazer Mac "Ardue," Kingston Hill, Surrey, automobile engineer, 1 ordinary share.

Solicitors: Hancock and Willis, 1, Verulam Buildings, Gray's Inn, W.C.1.

SATISFACTION.

DE HAVILLAND AIRCRAFT CO. LTD.—Satisfaction in full on Oct. 5, 1922, of debentures dated Sept. 29, 1925, securing £5,500.

PERSONAL NOTICES.

DEATHS.

ADDENBROOKE-PROUT.—On Jan. 26, at Bucharest, Reginald Addenbrooke-Prout, Major, O.B.E., M.C., *Légion d'Honneur* (R.A.F.), retired, beloved husband of Mrs. Addenbrooke-Prout, of Atter and Iwagh.

THOMAS.—On Feb. 21, at Chagford, Devon, Mary, the beloved wife of Sq. Ldr. T. J. Thomas, M.B., B.S., R.A.F.M.S.

FORTHCOMING MARRIAGE.

LINDUP—REFFELL.—The engagement is announced between Mr. Lt. Charles Arthur Lindup, R.A.F., Medical Service, elder son of the late Mr. A. E. Lindup and of Mrs. William Freeman, of Avonbank, Sutton, and Mrs. Gladys Reffell, daughter of the late Mr. Raymond Reffell and Mrs. Reffell, of Wraybury, Bucks.

BIRTHS.

COBHAM.—On Feb. 22, at 27, Buckland Crescent, N.W.3, to Mr. Alan and Lady Cobham—a son.

LUXMOORE.—On Feb. 21, at Parson's Mead, Beaulieu, to Doris Jane, wife of Flt. Lt. Francis L. Luxmoore, D.F.C., R.A.F.—a son.

Atlantic again crossed by Aeroplane —and again using Wakefield CASTROL

Col. The Marchese de Pinedo, who left Italy on February 6th, on an attempt to fly to South America, United States, Canada and back, reached Port Natal, Brazil, on Feb. 24th, after crossing the South Atlantic.

Following the precedent now so well established in previous Atlantic Flights, the lubricant chosen was—

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THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

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SIXPENCE WEEKLY.

[Registered at the G.P.O.
as a Newspaper.]

"STRANGE CONSORTS RODE BESIDE US."

(KIPLING:—The Merchantmen.)



IN TROUBLED WATERS:—A merchant ship at Wei-Hai-Wei, Shantung, with a Fairey IIID (Napier engine) on reconnaissance.

(Photograph by Ah Fong.)

Fit Palmer, there's no better tyre!

Palmer wheels and tyres were fitted to every British Aeroplane which left England during the Great War, they have been the standard equipment on British Aeroplanes ever since. See page 255 for details of twenty sizes, from 375 x 55 to 1750 x 350, covering the requirements of every type of machine.

(403)

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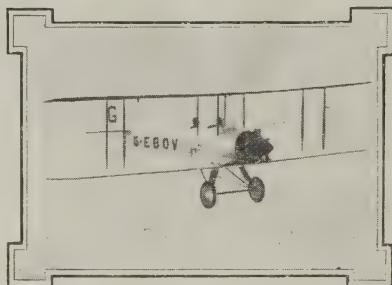
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MAR. 9,
1927.

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VOL. XXXII.

No. 10.

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ON THE GATHERING OF THE CLANS.

The morning after our revered Secretary of State for Air and his lady wife arrived in London, having been safely delivered from the perils of air, land and sea—air including fog, land including French railways, and sea including twenty-five knots with two hundred yards visibility in the Channel, an unregenerate member of the Staff of THE AEROPLANE, who is always closely in touch with the Royal Aero Club, came into one's office and announced, "There's to be a blind for Our Sam on Tuesday week."

The phrase is to be regarded entirely as a token of esteem and regard and not as being in any way disrespectful. Sir Samuel Hoare has now established himself so firmly as the Apostle of Airmindedness that he is commonly known in Clubs and places where they aviate by the shortest form of his Christian name, and generally with the prefix "Our."

In accord with precedent the purveyor of rumours was slightly inaccurate, though, as usual, his statement was based on fact, for actually the Thanksgiving Celebration was fixed for Wednesday, Mar. The Affair amounted in effect to a Gathering of the Aeronautical Clans, and was organised conjointly by the Royal Aeronautical Society, the Royal Aero Club of Great Britain and Ireland, the Society of British Aircraft Constructors, and the Air League of the British Empire, to put them in their strict order of precedence. But the Institution of Aeronautical Engineers was not invited to take part, a somewhat tactless omission, if union with the R.Ae.S. be desired.

The dinner tickets bore the strange device "Orders and decorations will not be worn." This struck one as unusual, for it is the custom, especially where the Royal Aero Club is concerned, on such occasions of semi-state as this, at which one has the opportunity of seeing the top table occupied by a serried rank of Cabinet Ministers and ex-Ministers, for all and sundry to wear every available decoration. They certainly add to the brilliance of the gathering.

There seemed to be two plausible explanations for the strange ruling on this occasion. One is that the organisers feared that the decorations might be more scintillating than the speeches. The other is that, expecting a number of technical officials and ex-officials of the Air Ministry to be present as members of the senior Society, the organisers desired to make it possible for that class which is commonly known as "the Kingsway Warrior" to conceal the fact that it never went to see the War.

Be that as it may, a discussion of the question produced the brilliant suggestion that some sort of uniform might be devised to distinguish at such functions as this the different clans or organisations concerned with Aviation. Obviously that best fitted to the Royal Aeronautical Society would be the kind advertised by our great stores as "slumber suits." Presumably members of the Royal Aero Club would be most appropriately arrayed in Plus Fours. The S.B.A.C. would of course appear in immaculate evening dress, with diamonds. And if ever the Institution of Aeronautical Engineers were



(Photograph by The Surrey Flying Services.)

THE STARTING PLACE.—The London Terminal Aerodrome, the Air Port of Croydon, whence Sir Samuel Hoare and his party started for India on the big flight so successfully organised and executed by Imperial Airways Ltd. with a De Havilland Hercules and Jupiter engines. The new aerodrome buildings are seen in the foreground. The old buildings in the middle will be totally abolished before the end of 1928.

invited to foregather with the superior Societies their uniform should certainly be boiler suits, as appropriate to the people who do the work.—One had almost forgotten the Air League of the British Empire. For it one could only suggest that substance which was used as a covering by the hero of Mr. H. G. Wells' story *The Invisible Man*.

THE THANKSGIVING.

THE LORD THOMSON OF CARDINGTON was in the Chair, and did his duty with that charm of manner of which he is a past master. And after a fairly good dinner he proposed the toast of "Our Guest," in one of the best of those graceful and literary speeches which he knows so well how to deliver.

Unfortunately the direct appeal of his speech, and in fact the success of the whole function, lost a high percentage of its effectiveness because of the regrettable absence, owing to illness, of the Lady Maud Hoare. The performance was rather like *Saint Joan* without the Maid of Orleans.

Unfortunately space is lacking in which to report any of the speeches at all fully. The two outstanding points of Lord Thomson's speech were his prophecy that in ten years' time no business man would ever think of travelling between London and the East by any route other than the air, and his expressed belief that Sir Samuel and the Lady Maud Hoare were the forerunners of innumerable distinguished British couples who would prefer to travel by air to India and the most remote parts of the World.

SIR SAMUEL HOARE in reply referred to the fact, unique in history, that despite changes in Government there had been a continuity of policy in this country in relation to air affairs. There had been scarcely any difference in principle in the programmes which Lord Thomson or he himself, as Secretaries of State for Air, had introduced since the War. And he said that when he came to introduce the Air Estimates in the House of Commons in about a fortnight's time very little would be found therein to which Lord Thomson and his colleagues of the Labour Party could object.

Referring to his journey to India and back he said that the flight was admirably organised by Imperial Airways Ltd. and that all through there had been the closest co-operation between that firm and the R.A.F. along the route. He himself, in spite of what had been said about him, could not compare his work in any degree with that of the pioneers of flying and, bowing to General Guidoni, the Italian Air Attaché, who was seated at a table in front of him, he remarked how great in comparison was the flight now being made by the Marchese de Pinedo.

Sir Samuel said that everything had been done for him, and that the actual Business Manager of the tour, so far as he and his party were concerned, was his Secretary, Mr. C. L. Bullock, who ordered everything for him, and tyrannised over him as he had doubtless tyrannised over Lord Thomson during his term of office. He said that if ever the Air Ministry organised a Department of Air Travel, on the lines of Cook's tours, he would certainly insist that Mr. Bullock be installed as head of the Department.

Referring to certain incidents on the voyage, Sir Samuel recalled that at Bushire, an out-of-the-way place on the Persian Gulf, five British machines arrived there at the same time, two of them being the Moths flown by those splendid sportsmen Stack and Leete.

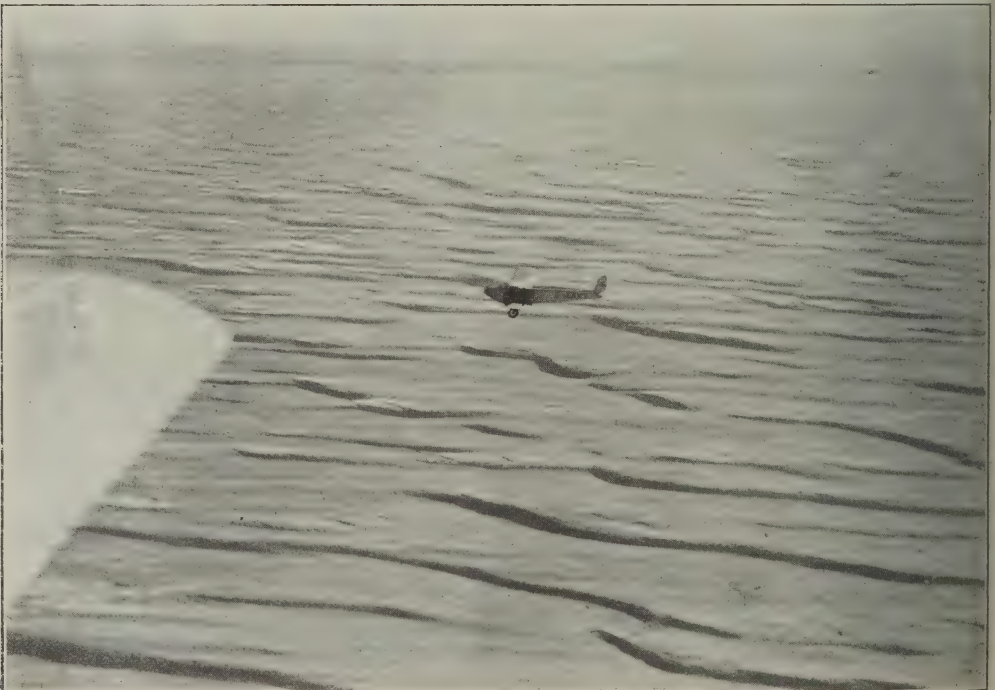
While there, a man in a fez evidently wished to speak to him, so he sent for a Persian interpreter, but in perfect English the man explained that he also was a member of the Lancashire Aero Club along with Stack and Leete, and that he was travelling Persia in Manchester piece-goods. Sir Samuel asked his audience what better proof there could be of the extending tentacles of the Light Aeroplane Clubs.

He said that in India people took a great interest in the flight, and that at Delhi he arranged that the Hercules should take up a cargo composed entirely of members of the Viceroy's Council. While the machine was in the air one of the onlookers, presumably an office-seeker, asked him whether he could not arrange for the machine to crash.

On his return journey, in Paris, one enthusiast for aviation suggested to him that there was one deficiency in the tour. "For," he said, "supposing at the end of your journey you were killed in a railway accident, that would then be the coping stone on an otherwise altogether successful tour."

Judging by the statements of one who crossed the Channel on the same boat as Sir Samuel and Lady Maud one gathers that the tour looked very like coming to an unpleasant end at sea.

In conclusion Sir Samuel said that though it might not be the result of his tour, there was at any rate an interesting sequel to it in the fact that the Government of India had just decided to embark upon a definite policy for Civil Aviation. He was sure that the journey would expedite the time when we should have properly organised air routes throughout the Empire, for when the Hercules arrived absolutely on time at its various landing places people regarded it as the outward and visible sign of British enterprise and British efficiency.



OVER SAND AND SEA.—The De Havilland Hercules (Bristol Jupiter engines), with Sir Samuel Hoare and party on board, flying over the Desert, North of the Sinai Peninsula. On the far horizon is the Mediterranean Sea. The waves in the foreground and middle distance are the sand-dunes of the Desert, each about 200 feet high.

Safety First!

All the British Government long distance flights by the Royal Air Force in 1926 were carried out with Napier engines. 101,000 engine miles were covered without the slightest mechanical trouble.

Imperial Airways have covered 2,500,000 miles with Napier engines on commercial service.

Commandante Franco selected Napier engines for his flight from Spain to Buenos Aires when he covered 12,518 engine miles, including 1440 miles across open ocean.

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THE VISCOUNT HALDANE OF CLOAN, Secretary of State for War before the War 1914-18, and Lord Chancellor under the recent Labour Government, proposed the health of the Chairman in a brief and beautifully finished speech delivered in the best manner of the great days of the British Parliament before Members were paid for speaking. He modestly claimed to have had something to do with aviation himself in that the Royal Flying Corps came into being during his period of office.

THE RIGHT HONOURABLE L. S. AMERY, Secretary of State for the Dominions and Colonies, supported the Toast, and japed merrily at Lord Thomson's expense. He agreed with Lord Thomson that in the future many other distinguished British couples would travel by air to India. And he prophesied that when Lord Thomson resumed office as Secretary of State for Air, on the return to power of his Party, perhaps some twenty years hence, Lord and Lady Thomson would certainly fly to India, probably accompanied by the little Thomsons in light aeroplanes,—a jest which will lose its point if one omits to explain that Lord Thomson has not as yet taken unto himself a wife.

Among those present were:—

The Right Hon. W. C. Bridgeman, M.P. (First Lord of the Admiralty), Sir Philip Sassoon, M.P. (Under-Secretary for Air), Marshal of the Royal Air Force Sir Hugh M. Trenchard (Chief of the Air Staff), Air Vice-Marshal Sir Vyvyan (the Government's representative on the Board of Imperial Airways) and Lady Vyvyan, Air Vice-Marshal Sir John F. A. Higgins (Air Member for Supply and Research), Lord Gorell, the Master of Sempill (Chairman of the Royal Aeronautical Society), the Hon. Mrs. Forbes Sempill, Sir Francis K. McClean (Vice-Chairman of the Royal Aero Club), and Lady McClean, Sir Herbert Hambling, Sir Samuel and Lady Instone, Mr. T. O. M. Sopwith (President of the Society of British Aircraft Constructors) and the Hon. Mrs. Sopwith, Mr. H. T. Vane (Vice-President of the Society of British Aircraft Constructors) and Mrs. Vane, and Mr. Philip S. Foster (Chairman of the Air League of the British Empire).

After the speeches the assembled multitude precipitated itself, according to custom, into agglomerations of human elements which carried on political, financial or technical arguments according to its constitution. Meanwhile some of the lighter-minded members of the various learned Societies departed for the dance floor, where they manoeuvred to the measures of a couple of bands whose conductors were evidently taking a holiday.—C. G. G.

ANOTHER IMPRESSION OF THE BANQUET.

On Wednesday, Mar. 2, several societies connected with Aviation, whose names apparently signified little to anybody, least of all to the Chairman, gave a banquet at the Savoy Hotel to Lord Thomson of Cardington.

Lord Thomson, in the main speech of the evening, said how much he had enjoyed being Secretary of State for Air and that he hoped that soon he would fill the position again.

Sir Samuel Hoare, who was also present, said what a good Secretary of State for Air Lord Thomson had been. He had worked very loyally with everyone. He also remarked that he himself had recently been to India and that Sir Geoffrey Salmond after a good luncheon had seen a sea serpent.

Lord Haldane said that he had only made Lord Thomson's acquaintance comparatively recently and he thought he had made a very good Secretary of State for Air.

Mr. Amery said that he had known Lord Thomson for years and years and liked him very much in spite of the fact that he knew all about him. He thought Lord Thomson would, in old age, make a good Secretary of State for Air.

Lord Thomson in returning thanks said how much he had enjoyed himself and that he hoped and expected to become Secretary of State for Air again soon.—G. D.

ACROSS AUSTRALIA BY MOTH.

Major Hereward de Havilland, who left England in December last for Australia, where he is to open a factory for the assembly, and ultimately the construction, of D.H. aircraft, arrived in Perth, Western Australia, on Feb. 7.

He was accompanied by two members of the De Havilland Aircraft Co. Ltd., who will assist in the Australian branch, and he took out with him a complete Moth.

On landing, this machine was assembled and on Feb. 24 Major de Havilland left Perth to fly to Melbourne.

He followed the Trans-Continental Railway by way of Kalgoorlie, the Great Victorian Desert, Port Augusta, and Adelaide and reached Melbourne on Feb. 28, having covered the entire distance of 2,000 miles at an average speed of 70 m.p.h., in spite of a head wind throughout the flight.

For over a thousand miles the route lay over a desert which has been described as a perfect aerodrome. The only vegetation is low scrub and there is a variation in altitude of not more than a few feet. The course of the railway for over 600 miles is straight and, except for maintenance staff along the route, the area is uninhabited.

THE R.A.F. AND THE LONG-DISTANCE RECORD.

One is informed by certain people who were listening to the news issued by the British Broadcasting Corp. on the night of Mar. 7 that an announcement was made to the effect that an aeroplane belonging to the Royal Air Force, driven by a Rolls-Royce engine of 700 h.p., is to attempt to fly from England to India non-stop. Not having heard the broadcast oneself, one cannot vouch for the wording. And one is unable to obtain from the British Broadcasting Corp. the precise wording of the statement, because, according to the official of the B.B.C. to whom one spoke, these broadcast statements are regarded as copyright,—apparently after they have been overheard by some millions of listeners. Which course is so like the B.B.C.

On the morning of Mar. 8 paragraphs appeared in some papers saying that British, German and French aviators are going to try to beat the non-stop long-distance record of 3,341 miles put up by M. Coste and Capt. Rignot last October when they flew from Paris to Jask on the Persian Gulf.

One newspaper statement says brightly "The British attempt will be made with a fast-flying machine fitted with special tanks enabling an immense fuel load to be carried." It is so likely that such an attempt would be made with a slow-flying machine with ordinary tanks carrying a small load of fuel, is not it?

Inquiry from the Air Ministry produces the announcement that a long distance flight is being contemplated to take place in 1927, but that its date and objective are not settled.

Personally one is growing a little bit tired of keeping secrets at the request of the Air Ministry when those secrets are invariably left loose, generally in an erroneous, if not perhaps misleading, form, by professional journalists who are not interested in the welfare of the R.A.F.

As a matter of fact, one has known of this projected flight for some considerable time. The machines have actually been built and ought to be flying before very long, and naturally there will be a good deal of testing and experimenting before they are judged fit to start out after records.

The Air Ministry has been perfectly right in keeping the attempt dark. The pity is that any information at all was allowed to leak out. But short of erecting the machines in some secret spot and keeping everybody concerned under lock and key until they are ready to start there is no possibility of preventing information from getting out.

The reason for keeping the scheme secret is that it is bad publicity for the R.A.F. to talk about what it is going to do unless success is certain. And in a flight of something approaching 4,000 miles, which is what will have to be done to beat the existing record handsomely, the odds are against success at the first attempt. It would be far better to say nothing about it till the job has been done.

The Air Ministry is perfectly truthful in saying that the date and objective of the flight are not settled, because nobody, not even the pilots of the machines, can tell where they are going to land till they get there.

Evidently the flight must be somewhere in the direction of India, because in the present state of international politics it is obvious that an Air Force pilot is not going to fly straight into the heart of Russia. It is equally obvious that he is not going to fly in the direction of the Cape, because that would mean following a compass course right over the most impossible parts of Equatorial Africa.

He could not fly by way of Egypt to the Cape, because these long-distance flights are measured in a straight line from starting point to landing point. Therefore the only possible route is one which is practically straight and along which there are proper aerodromes at reasonable intervals and possible landing ground all the way.

One merely suggests, now that the intention to make such a flight has been disclosed by what is commonly regarded as a journalistic enterprise, that the Air Ministry may just as well go the whole hog and say what it hopes that the R.A.F. will do and "release" pictures of the machines. For, considering the high reputation and the proved reliability of the Rolls-Royce Condor, and the equally high reputation of the makers of the aircraft, whose name one will not be the first to disclose, we can very well afford to make a sporting gamble on the success of the undertaking. Thus at any rate the British Aircraft Industry will get a certain amount of publicity.—C. G. G.

THE FLIGHT ROUND THE ATLANTIC.

On Mar. 1 Col. the Marchese de Pinedo, who is attempting to fly round the Atlantic Ocean on a Savoia 55 seaplane (two 500 h.p. Isotta-Fraschini Asso engines), took off from Santos at 10.00 hours but was compelled to alight again owing to engine trouble. He again took off at 11.45 hours and reached Porto Alegre, in Southern Brazil.

On Mar. 2 he arrived at Buenos Aires from Porto Alegre. He received a great welcome from a huge crowd. Ten seaplanes of the Argentine Navy met the *Santa Maria* and acted as its escort to the harbour.

FIRST ACROSS S. ATLANTIC IN 1 9 2 2



Commander Sacadura Cabral and Capt. Gago Coutinho in 1922 flew from Lisbon to St. Paul's Rocks, and from thence to Rio de Janeiro, in each case using the FAIREY SERIES III SEAPLANE fitted with a single ROLLS-ROYCE 'EAGLE' IX engine.

FAIREY CRAFT

The Fairey Aviation Company, Ltd.
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ON THE AIR ESTIMATES.

The Air Estimates for 1927-28 were published on Saturday, Mar. 5, under the official date of Feb. 28. With the Estimates were issued the annual *Apologia*, which is officially called a "Memorandum by the Secretary of State for Air." The first part of the Memorandum reads:—

The total of the net Air Estimates which Parliament is asked to vote for the coming year is £5,539,000, being a figure of £16,050,000 reduced by a "super-cut" for underspending (on Votes 3 and 4) of £500,000. The corresponding figures for the current year were £16,000,000, similarly reduced by a "super-cut" (on Vote 4) from £16,150,000.

The gross Estimates include expenditure on the Middle East and the Fleet Air Arm (repaid by the Colonial Office and Admiralty). It is satisfactory to note that there is a reduction of no less than £680,000 in Air Expenditure in the Middle East. This large decrease is due to the reduction of the Imperial Forces in 'Iraq which has been rendered possible by the continued success of the Air Command combined with the more promising political and military outlook. The increase on the Fleet Air Arm represents normal development in accordance with the Admiralty programme of aircraft carriers.

The detailed figures are as follows:—

—	1926.	1927.	+ or —
Gross (total of expenditure sub-heads)	£ 21,014,500	£ 20,486,400	£ —528,100
Deduct "super-cut"	150,000	500,000	+350,000
Gross Estimate	20,864,500	19,986,400	—878,100
Deduct Appropriations-in-Aid	4,864,500	4,436,400	—428,100
Net Estimate	16,000,000	15,550,000	—450,000
<i>Details of Appropriations-in-Aid:—</i>			
Middle East (Air and Ancillary Services)	2,921,500	2,257,000	—664,500
Middle East (supplies to British and Indian troops on repayment and other recoveries)	299,800	283,000	—16,800
Aden	—	110,000	+110,000
Fleet Air Arm	681,000	882,000	+201,000
Ordinary Appropriations-in-Aid	962,200	904,400	—57,800
Total Appropriations-in-Aid	4,864,500	4,436,400	—428,100

The Memorandum goes on to say that the amount required for ordinary services in the R.A.F., including Home Defence, is little altered. There is a decrease in Personnel and in Works and Buildings, but there is an increase in Technical Equipment, particularly in new types of machines. This, of course, will be good news for the Aircraft Industry.

INCREASES IN THE R.A.F.

The number of front line, reserve and auxiliary units is increased. The slowing down of the expansion programme during past years has permitted a reduction in expenditure on aerodromes and buildings and personnel. On the other hand, war stocks are nearly exhausted and new types of aeroplanes and engines are coming into use with a consequent larger expenditure on the re-armament of squadrons.

Important discussions at the Imperial Conference produced agreements which should lead to closer co-operation between the various Governments of the Empire. The Dominion and Indian Governments also intend co-operating in aircraft development.

The programme for the development of the R.A.F. has followed that indicated in the corresponding Memorandum for 1926. There are now 63 squadrons, of which 56 are regular.

The Home Defence Force now consists of 28 squadrons including 7 non-regular, so that more than half the original programme of 52 squadrons has been completed. The intention is to form 2 regular squadrons for Home Defence during the financial year 1927-28. And one non-regular squadron will be formed.

There will be five new flights (equal to 2½ squadrons) for the Fleet Air Arm. These are required for *H.M.S. Courageous*, which is due to commission as an aircraft carrier this year. The Fleet Air Arm will thus be raised to 23 flights, or 11½ squadrons.

There will be one new Army Co-operation Squadron. This is required by the development of Catterick as an Army training centre.

Thus the total strength of the R.A.F. will be increased during 1927-28 by approximately six squadrons.

As a result of the settlement of the Northern Boundary question, and of the development of the 'Iraq Army, the air garrison in 'Iraq is being reduced from eight squadrons to five. In all 11-1/3 squadrons are at present located in the Middle East and six squadrons in India.

SHOWING THE FLAG.

The policy of developing the mobility of the Air Arm by long distance flights will be continued, as part of the normal training exercise of the R.A.F. This programme includes another South African flight—in co-operation with the South African Air Force.

Also there will be a long-distance flight with flying-boats to develop the service air route between India and the Far East. These boats will be provided during 1927 and the intention is that they should make an extensive cruise in the Far East in 1928 as a self-contained unit, finally visiting Australian ports.

In the Memorandum Sir Samuel Hoare says:—

I attach the greatest possible importance to the development of the strategic air routes which are essential to the effective and economical employment of the Air Arm in the field of Imperial defence.

This theory of the development of air routes on the idea which lay behind the strategic railways of the past will be familiar to all regular readers of THE AEROPLANE.

Further the Memorandum says that a sum of £30,000 is taken in the Estimates for expenditure on landing grounds and refueling bases on these routes.

TRAINING.

There is an interesting section in the Memorandum on Training and Experimental Establishments. It points out that the Flying Training Schools demand a large complement of instructors and aircraft to minimise the risk of accidents, and to adjust the training to the individual qualities of the pupils and to the types of aircraft which they will fly in the Squadrons. This is evidently a reply to the criticisms recently published in the daily press as to the cost of training R.A.F. officers in comparison with the cost of training Army officers.

Further this section of the Memorandum points out that aircraft are maintained at Headquarters Units and at Training Establishments other than flying training schools to enable the staffs of those units to keep in practice. This meets the silly criticism about the large number of R.A.F. officers on the ground in comparison with those with squadrons.

The critics forget that the staff and training establishments of the R.A.F. have to be organised to deal with an enormously expanded war-time Air Force, of which the active service units now existing are only the nucleus.

REDUCTIONS IN PERSONNEL.

In spite of the increase in the number of squadrons already mentioned, the personnel of the R.A.F. is to be reduced by 2,500. This presumably will be done by allowing time-expired men to leave and not replacing them by new recruits.

The Memorandum points out that this reduction is only temporary, and remarks that it is made possible by the withdrawal of air forces from 'Iraq and the progress of the policy of "civilianisation."

That ghastly word has apparently been coined by some exponent of what the late Sir Walter Raleigh called "Public Office English" to cover the scheme by which aerodrome work and a great deal of workshop work at R.A.F. depôts and so forth is done by civilian workmen and not by R.A.F. personnel. The scheme is good because it means that the R.A.F. can engage as civilian workmen quantities of competent mechanics and labourers who cannot be enlisted as airmen because they are not medically fit for service overseas—as every airman must be, of necessity. In time of war of course all these civilians would be conscripted and put into uniform so as to have them under proper discipline.

There is interest in noting that according to the Memorandum the withdrawal from 'Iraq helps this reduction mainly by reducing the ancillary personnel on supply, transport and medical duties. Therefore one assumes that the R.A.F. will actually lose none of its properly trained airmen.

The number of officers in the R.A.F. has been reduced by an increase in the number of airmen pilots, of whom 242 are now on the establishment.

The Memorandum notes that these airmen pilots will now have additional responsibility in that they will be eligible to undertake certain technical duties previously performed by officers. But it remarks that this substitution of airmen pilots for Short Service officers has the disadvantage of decreasing the flying Reserve. To obviate this, the Memorandum says, airmen pilots in future will return to the duties of their trade after five years' flying service and will be kept in flying practice and be liable for flying duties in war.

As a result of the Imperial Conference, there is to be a closer interchange between the air forces of the Empire, which will not only assist interchange of ideas but will effect economy by the division of the cost of flying training between the Imperial and Dominion Exchequers. For example, certain officers trained in Australia have recently joined the R.A.F. on Short Service Commissions for four years.

The Memorandum points out that owing to rearrangement of the various training schools for apprentices and men there is an actual decrease of about £40,000. There is also a saving in the Medical Service.

The cost of Reserve and Auxiliary Forces is increased by £94,000.

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MONEY FOR MACHINES.

All of us who have to make our livings directly or indirectly out of the manufacture of aircraft will be delighted to hear that Vote 3 (Technical and Warlike Stores) shows a net increase of £333,000. After making deductions for unexpected delays in contract work and consequent failure to spend during the past year the increase in the total of the sub-heads in the Estimates is actually £633,000.

That £633,000 apparently represents the actual increase in expenditure on Technical Equipment and Research for 1927-28 as against 1926-27.

The Memorandum says that it is partly explained by increased requirements for Airships and for Research and Technical Development, but mainly by the need for the replacement of older types of aircraft and engines and for the formation of new squadrons. One can only hope that in replacing the old types and forming new squadrons the Technical Experts at the Air Ministry will see to it that the Air Force gets really new and modern machines equal to or better than those of foreign Powers, and will not humbug the Air Staff into thinking that they have got new machines when they are merely being supplied with machines which ought to have been in the hands of the R.A.F. four or five years ago.

Further the Memorandum says:—

The policy of replacing aeroplanes and engines of wartime design by modern types is making steady progress and it is the intention that in future no more aircraft or engines of wartime designs should be bought.

This is truly an awful admission, for it means that up till the end of 1926, that is to say eight years after the end of the War, we have actually been buying aircraft and engines of wartime design. If ever anything were needed to justify all the unkind and even bitter things that one has ever said in this paper about the Technical Experts at the Air Ministry surely these official words are more than enough.

This justification is driven home by the following words of the Memorandum, which read:—

The provision for maintenance is less than in 1926, a decrease which the experience of the past year has shown to be justified.

That only shows that we might have saved quite a lot in upkeep and maintenance if we had used modern machines and engines instead of all the old wartime junk.

RESEARCH AND TECHNICAL DEVELOPMENT.

The following paragraph in the Memorandum is extremely interesting. It reads as follows:—

Appendix II shows the funds allotted under various subheads of Vote 3 to Scientific Research and Technical Development. It will be seen that there is a net increase of £128,000 as compared with 1926, of which the major part is in respect of research and development on aeroplanes and engines.

On the aeroplane side this is due to provision for the purchase of a larger number of aircraft of types which have already been flown experimentally, for development up to the point at which they may, if suitable, be standardised for service or civil purposes. Similarly provision has been made for the purchase of a number of engines in an advanced stage of development, for installation in experimental aircraft, so as to combine the latest advances both in aircraft and engine design in one machine. The increase under subhead G.1 is mainly in respect of metal construction.

There is quite a lot of comfort to be derived from the fact that a considerable sum of money is to be spent in the actual purchase and flying of experimental aeroplanes and engines. The Memorandum notes that among these experimental machines are auto-gyros and high-speed machines, which means Schneider Trophy racers.

R.A.E. AND AIRSHIPS.

The information appears in the Memorandum that organisation of the Royal Aircraft Establishment at Farnborough has been changed by the creation of two posts, one that of Superintendent for Scientific Research and the other of Superintendent for Technical Development.

This is to match the similar division of responsibility at the Air Ministry. These two posts have been created by abolishing two other appointments already on the Establishment. The former Superintendent of the R.A.E. will now be known as Chief Superintendent.

Progress in Airships is indicated by the fact that £50,000 appears under the Airship Vote as a first instalment of the cost of a second shed at Cardington.

Provision is also made for officers of the airship and meteorological staffs to visit South Africa and Australia and Canada to study the weather conditions. £90,000 appears in the Estimates for the construction of the Vickers-built Burney airship as against £30,000 in 1926. This presumably means that a certain amount of actual constructional work will be done this year.

WORKS AND BUILDINGS.

Works, Buildings and Land show a net decrease of £447,000 as compared with 1926-7. The total amount for major works services at home is £1,147,000, which provides for the beginning of work on two new stations recently acquired, one for two bombing squadrons and the other for a Reserve squadron.

Those who believe in a Spartan training for the young will

be gratified to learn that in the interests of economy provision of permanent buildings for the Cadet College at Cranwell is still postponed. So the young flying officer will still learn the elements of his job in little wooden war-time huts. Which is probably very good for him.

Those who are interested in the next war will be glad to hear that the development of the Singapore Base necessitates the expenditure of £83,000 in 1927-28 for an aerodrome and accommodation and repair shops.

Doubtless with a similar idea in view an extension of cost £190,000 is being made in the enlargement of the aerodrome and its equipment at Malta for the increasing Fleet Air Arm units. But not more than £30,000 is likely to be spent in 1927.

CIVIL AVIATION.

On the Civil Aviation side the following facts emerge from the Memorandum:—

£137,000 has been provided for the subsidy payment to Imperial Airways Ltd. in respect of their European air services and £936,000 for the subsidy for the Cairo-Karachi service.

The agreement for financial assistance to five out of the six Light Aeroplane Clubs will end in July next, and consideration is still being given to the form in which continued assistance shall be given.

The alterations in the Air Port of London at Croydon will absorb £111,000 and the reconstruction of the Air Port should be completed during 1928.

A further £10,800 has been provided for the wireless equipment of the new Wireless Telegraphy Station at Croydon.

There is an increase of £8,000 in the expenditure on the Meteorological Department. A new "Airships Division" of the Meteorological Office is being formed to deal particularly with the problems of these craft.

THE AIR MINISTRY ITSELF.

The Vote for the Air Ministry itself shows a net decrease of £74,000. This seems to have been accomplished more by re-arrangement of figures than by actual reduction in the numbers of the personnel.

According to the Memorandum there has been a variation in the method of showing allowances (to conform with the practice of Army Estimates) and by increased Appropriations in Aid from the Middle East Department, which now apparently paying for the cost of the Audit Staff in Iraq and Palestine.

One merely suggests that, by getting rid of a few of the permanent obstructionists at the Air Ministry, although the actual expenditure under this Vote would only be decreased by a very few hundreds of pounds, a saving of several millions might be effected by the consequent increase in efficiency.

Finally the Memorandum points out that the Air Estimates this year are presented with inter-leaved sheets, such as are already printed with the Navy and Army Estimates. Sir Samuel Hoare hopes that the information given in the sheets will be found of assistance in the discussion of the Estimates. These inter-leaved sheets are of a peculiar bilious green on which the print is rather difficult to read.

ACTUAL FIGURES.

Space cannot be spared in this issue of THE AEROPLANE to discuss the figures of the Estimates in detail, but for the general information of readers it is necessary to give the over-all figures of the various Votes.

The total number of Personnel for 1927 is 33,000 as against 35,500 for 1926, showing a decrease of 2,500.

The Pay of the Air Force for 1927 is £3,160,000 as against £3,405,000 for 1926—a decrease of £245,000. On top of this the Air Ministry receives £1,101,000 in the form of Appropriations in Aid—that is, payment from the Middle East or the Navy for services rendered.

Quartering and Stores amount to £1,365,000 for 1927, against £1,507,000 in 1926—a decrease of £142,000. On top of this the Air Ministry receives £580,000 in aid.

Technical and Warlike Stores (including Experiment and Research Services) amount to £6,424,000 net against £6,091,000 in 1926. This is an increase of £333,000 on the face of it. But Appropriations in Aid amount to £2,065,000 which brings the gross amount to £8,489,000.

Without going into any details, one may state that the summary of Vote 3 shows that in 1927 £5,904,000 are to be spent on aeroplanes, seaplanes, engines and spares, which is an increase of £553,000 in 1926.

This again is sub-divided into £2,930,000 for complete machines, an increase of £42,000 over last year; £1,574,000 for complete engines, an increase of £543,000 over last year; £900,000 for spares, parachutes and miscellaneous, a decrease of £13,000; and £500,000 for engine spares, a decrease of £19,000.

THE R.A.E. FIGURES.

Experimental and Research Establishments are set down in the Estimates as costing £95,000, the same as last year. Of this the Royal Aircraft Establishment at Farnborough is set down as costing only £33,000. But when one looks into the figures one finds that it actually costs £390,000.

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(which is an increase of £4,300 over last year), and that £357,000 is written off that as being cash earned by the R.A.E. for supplying to the R.A.F. or to Civil Aviation, aircraft and engines, technical and warlike stores, armament and ammunition, electrical stores, balloons, and for miscellaneous research.

Still, even assuming that the whole of that £390,000 comes out of the Vote for Technical and Warlike Stores, it still leaves £8,489,000 to be paid to the Aircraft Trade and its ancillary trades. Which really is not so bad.

Works and Buildings get £1,900,000 as against £2,347,000 last year, a decrease of £447,000.

Medical Services get £203,000 against £209,000, a decrease of £6,000.

Educational Services get £507,000 against £432,000, an increase of £75,000.

Auxiliary and Reserve Forces get £500,000 against £406,000, an increase of £94,000.

Civil Aviation gets £464,000 against £462,000, an increase of £2,000.

Meteorological and Miscellaneous Services get £150,000 against £135,000, an increase of £15,000.

The Air Ministry gets £687,000 against £761,000, a decrease of £74,000.

GROSS TOTALS.

The total figures, including Non-Effective Services such as half pay, pensions and so forth, total up as follows:—

The Gross Estimates for 1927 amount to £19,986,400. Of this Appropriations in Aid amount to £4,436,400. These Appropriations in Aid include £2,257,000 paid by the Middle East Department for services rendered by the R.A.F. in Iraq, Palestine and Trans-Jordan, and £110,000 for the R.A.F. at Aden. They also include £283,000 for supplies to British and Indian troops and other matters in the Middle East.

Lastly they include £882,000, a grant from the Navy Vote in respect of the cost of the Fleet Air Arm. Last year's Estimates showed that the Navy Appropriation in Aid was £681,000, so the Navy is paying £200,000 extra for air work this year.

Deducting the Appropriations in Aid from the Gross Estimate, the total Net Estimate was £15,550,000.

Compared with this last year's Gross Estimate was £20,864,500. The Appropriations in Aid were £4,864,500, and the total Net Estimate was £16,000,000.

By some mysterious system of official figure-juggling these amounts show either an increase of £519,000 or a decrease of £969,000, according to the angle from which you look at them. But anyhow the official document shows a net decrease of £450,000, so far as it concerns the British Taxpayer, and shows a net increase of £333,000 for Technical and Warlike Stores, which is what most concerns the Aircraft Industry. So we will let it go at that.—C. G. G.

THE CANADIAN AIR ESTIMATES.

The Estimates of the Department of Defence for the Royal Canadian Air Force for the new fiscal year will be \$3,000,000 as compared with \$2,200,000 last year. In addition the Post Office Department will ask for \$75,000.

The R.C.A.F. vote includes money for the enactment of aerial regulations applying to civil flying, licensing of pilots and inspection of machines, as well as for surveying and forest patrol work done for the Department of the Interior and the maintenance of the actual military force.

The Post Office vote is for the preliminary work on the establishment of air mail routes. The mooring mast promised by Mr. Mackenzie King at the last Imperial Conference will probably form part of the year's programme, although nothing definite can be learned as to where it is to be erected.

The Civil Branch of the Canadian Air Board has circularised the municipal authorities of all Canadian cities drawing their attention to the future advantage of municipally-owned landing grounds and asking for their views on the matter.

The Post Office Department is receiving inquiries from all parts of Canada and the United States as to its plans, and several private flying companies have indicated their intention to offer tenders for any contract for which the Department may call for bids.

A PORTUGUESE WORLD FLIGHT.

On Mar. 2 Lieut.-Col. Sarmento de Beires left Alverga Do Ribatejo, Lisbon, in an attempt to fly round the World.

He is using a Dornier Wal seaplane (two 450 h.p. Lorraine-Dietrich engines) which has been christened *Argus* and he is accompanied by Major Duvale Portugal, second pilot, Capt. Jorge de Castilho, navigator, and Sub-Lieut. Manuel Gouveia, mechanic.

It is interesting to note that Lieut.-Col. Sarmento de Beires has been presented with a spare pair of engines by the Lorraine-Dietrich Company.

On Mar. 6 he arrived at Bulama, Portuguese Guinea.

THE SCHNEIDER TROPHY COMPETITION.

The Italian Aero Club has definitely fixed Sept. 25 as the date for the Schneider Trophy Competition which is to be held at Venice.

The National Aeronautic Association of America entered three seaplanes for the competition on the last day for receiving entries. What they are to be is not yet made known.

A TCHECO-SLOVAK AIR TRAFFIC COMBINE.

On Jan. 22 there was constituted in Prague the Société Tchecoslovaque de Traffic Aérien, with a capital of eight million crowns. The following constructional firms are embodied in the Society: Skoda-Werke, of Pilsen, Milos Bondy and Co. (Avia), of Prague, Brieffeld-Danek and Co., of Prague and J. Walter and Co., of Jinonice, near Prague.

LADISLAS ORCZY.

His many friends all over the World will regret to hear of the death in Paris recently of Ladislav d'Orczy, who was for several years Editor of *Aviation*, New York.

His proper name was the Baron Ladislav Orczy. He came of a noble Hungarian family and was in fact a cousin of the Baroness Orczy, who is so well known as a novelist. He used the name d'Orczy merely as being a pronounceable French translation of his own name for the convenience of his friends when he was living in France. And under that name he became known wherever people fly.

From time to time he contributed many articles to *THE AEROPLANE*, and was also for several years responsible for the voluminous and accurate information about American Aviation which appeared in *All the World's Aircraft*. Also he contributed to *THE AEROPLANE* a number of very interesting articles under the name of *Austerlitz*, using that pseudonym because the subject-matter of the articles was such that it might have been detrimental to his position if it had appeared under his own name.

One first met Ladislav Orczy at one of the early Aero Shows in Paris, some years before the War 1914-18. One was struck then by his intense devotion to Aviation, and by his activity of mind and imagination tempered with good sound practical common sense as concerned the technical development of aviation. He had the vision to see what flying would become and he had the mechanical knowledge to prevent him from prophesying wildly about the future.

In those early days he gave one personally much valuable information about developments on the Continent, and also helped *THE AEROPLANE* quite considerably. When War broke out, finding himself in the awkward position of being to all intents and purposes a Frenchman by nationality and yet of enemy blood, he wisely went to the United States, where he continued to do valuable work for International Aviation, as well as for American Aviation.

As Editor of *Aviation*, New York, he knew what would interest readers all the World over. And that valuable paper was never more interesting than it was while he was responsible for its contents.

After the coming of Peace he interested himself keenly in Civil Flying. When one was in America in 1924 he gave one an insight into American aviation from an angle which one could never have got in any other way, for he knew the American Aircraft Industry better than most Americans, and he viewed it dispassionately as a European.

Just about that time, he had a fall, which had nothing whatever to do with flying, and damaged a knee, which developed synovitis. Like so many active men, he was inclined to treat the ailment lightly, and insisted on going about when he should have laid up till completely cured.

He came over to Europe in 1925 and his knee continued to get worse till finally the French doctors diagnosed tuberculous joint. He went to Switzerland for a cure and after he had suffered for many months the doctors decided to amputate his leg. This was duly done, and the improvement in his general health was remarkable.

When he was apparently completely cured he took over the work of Secretary to the *Ligue Internationale des Aviateurs*, and, thanks to Mr. Lester Gardner, was fitted with one of those excellent artificial legs designed by that one well-known pilot René Desoutter.

When one saw him at the Paris Show just before Christmas he was looking extremely well and had regained all his old vivacity and humour. Therefore one received a great shock when a week or so ago one read in *Les Ailes* of his untimely death.

In Ladislav Orczy International Aviation has lost a faithful and enthusiastic worker, and many of us have lost a friend whom we valued not only for his work but for his companionship. He had all the proverbial obstinacy of the Hungarian when his mind was set on an idea, and then he was more often right than wrong. Also he had the vivacity of a Frenchman coupled with a curiously English sense of humour and soundness of outlook. Such as he can ill be spared.—C. G. G.

Blackburn.

BLUEBIRD



EXTRACTS FROM A PILOT'S DIARY RETURNING FROM A PLEASURE CRUISE ON THE CONTINENT

Dec. 12th. Heavy mist through which we could just see about half way across the aerodrome. We decided to push on to Beauvais where the fog was reported to be less dense... had we been in any other machine than the BLUEBIRD I doubt whether we should have done so. Its low stalling speed, combined with the comfortable cockpit and confidence given by the occupants sitting side by side & being able to talk to each other, made the world of difference, & tended to make one forget the usual uneasiness one feels when flying under such conditions.

Arrived Abbeville 14.00. Having decided to stop the night we packed down the BLUEBIRD & left it in the open with a sheet over the engine & cockpit.

The GENET started up without the slightest trouble notwithstanding the fact that it had stood out all night. We left Abbeville 11.35 after putting 4 gallons of "B.P." petrol into the tank to make certain of reaching Lympe without running short.

We found Cape Grisnez with clouds at 100 ft & St. Inglevert getting clearer; we circled around the aerodrome & then made a course across the Channel.

We reached Folkestone twenty minutes later... During the whole trip not a single thing was done to the machine or engine excepting in the latter case, to clean the plugs.

It was a very enjoyable trip & we are very keen on repeating it in fine weather.

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THE ROYAL AIR FORCE.

The London Gazette.

Mar. 1.

GENERAL DUTIES BRANCH.—The following Flight Cadets having successfully passed through the R.A.F. Cadet College, Cranwell, are granted perm. comms. as Plt. Offs. with effect from Feb. 15, and with seniority of Dec. 11, 1926:—F. D. Biggs, R. Brown.

The following Plt. Offs. are promoted to the rank of Flg. Off.:—H. A. Evans-Evans (Sept. 7, 1926) (substituted for notification in *Gazette* of Jan. 18, 1927); L. W. Cannon, T. N. McEvoy, W. M. C. Kennedy (Jan. 30).

Flt. Lt. R. S. Martin is transferred to the Reserve, Class C (Jan. 5) (substituted for the notification in *Gazette* of Jan. 7); Plt. Off. E. L. Cowan relinquishes his S.S. comm. on account of ill-health (Mar. 2); I. M. N. Mudie, Lt., R.N., Flg. Off., R.A.F., relinquishes his temp. comm. on return to Naval duty (Feb. 13).

STORES BRANCH.—Flg. Off. C. Hanson-Abbott is granted a perm. comm. in this rank with effect from June 24, 1926, on completion of probationary service; Plt. Off. E. H. Broad is promoted to the rank of Flg. Off. (Feb. 10).

MEDICAL BRANCH.—Flg. Off. D. Oliver, B.A., resigns his S.S. comm. (Mar. 2).

RESERVE OF AIR FORCE OFFICERS.—Flg. Off. J. R. Foster is confirmed in rank (Feb. 24).

The following Flg. Offs. are transferred from Class A to Class C:—C. K. Robinson (Dec. 11, 1926); J. M. S. Taylor (Feb. 26). The following are transferred from Class B to Class C:—Flt. Lt. D. K. Cameron (Feb. 26); Flg. Off. W. Parkinson (Dec. 20, 1926).

The following Flg. Offs. relinquish their comms. on completion of service:—M. W. Baseden (Sept. 12, 1926); A. E. Hempel (Feb. 24).

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—The following to be Plt. Off.:—No. 600 CITY OF LONDON (BOMBING) SQUADRON.—P. G. Stewart (Mar. 1).

PRINCESS MARY'S R.A.F. NURSING SERVICE.—Sister Miss M. C. Messer is placed on the retired list on account of ill-health (Feb. 17).

Appointments.

Week ending Mar. 7.

GENERAL DUTIES BRANCH.—Wing Commanders C. H. K. Edmonds, D.S.O., O.B.E., to R.A.F. Depot, Uxbridge, pending posting, 7/3. E. H. Johnston, O.B.E., D.F.C., to Armament and Gunner School, Eastchurch, to command, 7/3. The Hon. L. J. E. Twisleton-Wykeham-Fiennes, to No. 503 Sqn., Waddington, to command, 25/2.

Squadron Leaders F. J. Vincent, D.F.C., to No. 84 Sqn., Iraq, 11/2. A. Durston, A.F.C., to School of Naval Co-operation, Lee-on-Solent, instead of to R.A.F. Depot, as previously notified.

Flight Lieutenants I. H. O. Jones, to R.A.F. Base, Calshot, 2/3. F. Workman, M.C., to Home Aircraft Depot, Henlow, 1/3. R. S. Sorley, D.S.C., D.F.C., to Air Ministry (Directorate of Technical Development), 1/3. J. A. Elliott, to No. 22 Group H.Q., Farnborough, 11/3. R. L. Stevenson, M.B.E., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 26/2. C. Chapman, D.S.C., to R.A.F. Depot, Egypt, 9/2. D. M. Fleming, to Aircraft Depot, Iraq, 7/2. C. W. Attwood, to School of Army Co-operation, Old Sarum, 14/3.

Flying Officers J. E. Davies, to No. 5 Arm. Car Coy., Iraq, 1/2. F. S. Homersham, D.C.M., M.M., to No. 47 Sqn., Egypt, 1/2. J. S. Nichol, to No. 2 Sqn., Manston, 7/3. T. J. E. Thornton, to No. 39 Sqn., Spittlegate, 1/3. R. N. Hesketh, to R.A.F. Depot, Uxbridge, 25/2. S. Wallingford, to R.A.F. Base, Calshot, 2/3. E. H. Collinson, M.C., to R.A.F. Base, Calshot, 3/3. R. F. Casey, D.F.C., to remain at C.F.S., Wittering, instead of to No. 39 Sqn., as previously notified. J. J. Teasdale, to H.M.S. *Furious*, 26/2. A. C. Meredith, to R.A.F. Depot, Uxbridge, 2/3. (Hon. Flt. Lt.) R. Stiven, to H.Q., I.A., Stanmore, on transfer to Home Estab., 3/3. K. C. Garvie, to No. 6 Arm. Car Coy., Iraq, 19/2. C. G. C. Wolledge, to I.W.T., Iraq, 17/2. G. J. Southam, to No. 47 Sqn., Egypt, 19/2.

Pilot Officers J. W. Busted, to Helipolis Details, 15/2. W. B. Causer, to No. 47 Sqn., Egypt, 8/2. F. H. Bailey, to No. 14 Sqn., Palestine, 11/2.

MEDICAL BRANCH.—Flight Lieutenant L. C. Palmer-Jones, M.B., to No. 4 F.T.S., Egypt, 4/2.

STORES BRANCH.—Flight Lieutenants F. H. Sims, to Central Supply Depot, Iraq, 15/1. C. T. Davis, to R.A.F. Station, Northolt, 21/2.

Flying Officers D. W. Dean, to No. 23 Group H.Q., Grantham, 12/3. R. Q. Bamber, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 6/2.

ACCOUNTANT BRANCH.—Flight Lieutenant J. M. Adams, to No. 47 Sqn., Egypt, 28/1.

Flying Officers E. W. Horncastle, to R.A.F. Base, Malta, 2/1. J. J. Armstrong, to No. 23 Group H.Q., Grantham, 4/3.

The Chief of the Air Staff at Acton.

Marshal of the Royal Air Force Sir Hugh Trenchard, Bt., G.C.B., D.S.O., Chief of the Air Staff, accompanied by Lt. Col. L. F. R. Fell and Sq. Ldr. C. G. Burge, O.B.E., paid a visit to the works of D. Napier and Son Ltd., Acton, on Mar. 2, and saw the famous Napier Lion aero-engine being manufactured.

The Chief of the Air Staff arrived at 10.30 a.m. and was received by Mr. H. T. Vane, the Managing Director, who conducted him through the shops. He was also shown over the experimental department where he saw the many new aero-engine developments that the Napier Company have in hand.

Sir Hugh Trenchard was keenly interested and expressed himself pleased with all he had seen.

R.A.F. SPORTS AND PASTIMES.

Rugby Football.

R.A.F. v. Oxford University.—Oxford beat the R.A.F. at Oxford on Mar. 2, by two goals and two tries (16) to one goal and two tries (11). This team, which is alleged to be representative of all that is best in R.A.F. Rugger, will not beat the Army on March 26.

Allowing that the time is now past when one can indulge in destructive criticism and suggest that at least fifty per cent. of the team should be relegated to the eternal limbo of golf and billiards, there remains the alternative of discussing what can be done with a team whose forwards do not emerge from a semi-comatose condition until half-time, and whose backs have to receive instruction on the field of battle in the rudiments of Rugby Football.

The display by the R.A.F. in the first half of the match against Oxford would have disgraced a preparatory school. One sympathiser with those defaulting spectators who left the ground at half-time and went and watched what appeared to be the aquatic sports in the neighbourhood. At the same time they missed quite a good second half when with rain and wind against them the R.A.F. did some of those things they might more easily have done in contrary circumstances.

There were good moments even in the first half, but three first-class players cannot be expected to counteract twelve who are indifferent or worse. Sq. Ldr. Russell was at his best, and might have added considerably to the R.A.F. score if he had played a less unselfish game. Flt. Lt. Chick, adorned with a black eye of unparalleled beauty won in the savage warfare of a Unit Cup semi-final, was untiring in the scrum and lively and enterprising in the loose. Flg. Off. Hodder has improved enormously and played the right game throughout.



THE FLIGHT OUT OF EGYPT.—The De Havilland Hercules (Bristol Jupiter engines), with Sir Samuel Hoare and party on board, flying near the Canal Zone on the way to Baghdad.

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The Air Force started the scoring, Chick getting over from a good break-away by Russell. The goal-kick failed. Oxford were getting the best of the scrums. On one occasion they seemed to push the Air Force about 20 yards. The Air Force got the ball from the line-outs and occasionally by hooking, but their three-quarter line broke down every time, chiefly through bad handling.

Russell made a mark but failed to find touch and McCanlis, the Oxford full-back, showed that attack is the best method of defence. Oxford scored on their right wing in spite of a good tackle by Sayers, the R.A.F. full-back, who was too late. The goal-kick failed.

Oxford kept up their attack, but were held, first by a screw-kick into the scrum by Russell from a scrum, and then by a mark by Hodder. A forward rush by the R.A.F. ended in a wild pass by Chick into Oxford hands.

The Air Force began to get the ball out of the scrum and some good work by Russell and Norwood was spoilt by the awful handling of the three-quarters. Oxford were penalised for off-side and the Air Force kick at goal failed.

Oxford's second try came again on their right wing and was the result of skilful passing and punting ahead. Then their three-quarters got into their stride and gave the helpless Air Force a demonstration of passing and reverse passing which ended in a try behind the posts. This was converted.

The second half was played in a torrent of driving rain, and showed vastly improved combination by the R.A.F. forwards. Chick, Chichester and O'Malley were particularly good in the loose and all were showing better. Among the backs Harvey and Hodder broke away several times, but Bryson and Massey were hopelessly ineffective. Bryson was penalised for not playing the ball. Chick saved once with a screw-kick to touch. Chichester broke away from a line-out, but Massey passed forward to Harvey.

Chick headed a forward rush and Harvey scored from a scrum near the Oxford twenty-five. Harvey started a good movement backed up by O'Malley, and Hodder gathered well and running straight scored a good try. Chick converted.

The score was equal for about twenty minutes, but the Air Force were in defence and had to touch down once. Bryson showed some of his old form in overtaking and tackling the Oxford left wing man.

In spite of repeated instructions to find touch the R.A.F. three-quarters tried another passing movement, which again broke down. Massey fumbled the greasy ball and Oxford got it. Oxford kicked ahead and won the sprint for the line. Paterson converted.—C. M. McC.

The R.A.F. team were:—

AC. T. Sayers, back; Flt. Lt. O. C. Bryson, Flg. Off. Hodder, AC. Massey, and Flg. Off. G. D. Harvey, three-quarter backs; Flt. Off. J. Norwood and Sq. Ldr. J. C. Russell, half-backs; Flg. Off. J. G. Franks, L.A.C. Rollings, Flg. Off. F. V. Beamish, Flg. Off. B. V. Reynolds, Flg. Off. P. G. Chichester, Flt. Lt. J. S. Chick, Cpl. M. G. Christie, and Flg. Off. C. J. S. O'Malley, forwards.

The R.A.F. v. The Army.

The Army v. R.A.F. Rugby Football Match will take place at Twickenham on Mar. 26. Tickets (7s. 6d. each), may be had from Flt. Lt. T. Elmhurst, A.F.C., the Air Ministry, Kingsway, W.C.2.

Hockey.

R.A.F. v. Middlesex:—The R.A.F. beat Middlesex at Stanmore on Feb. 16, by 4 goals to 2. *The Times* account of the game states:—

Middlesex were certainly unlucky during the first half, during practically the whole of which they played one man short. R. W. Tydd-Chapman, the Irish International, took a pass from the left wing to give Middlesex the lead after seven minutes' play and Stevenson put in a hard pass for Dare to equalise two minutes later. Middlesex then attacked as best they could with four forwards.

Middlesex again attacked at the beginning of the second half, but after seven minutes' play, and during one of the periods when Middlesex were pressing, R. E. Hall obtained the ball from a clearance, and the R.A.F. forwards took it up to the other end of the field for Dare to score a goal. A similar move shortly afterwards resulted in Hall scoring, but Middlesex then made a series of attacks, and on three occasions wild hitting prevented what appeared to be certain goals.

The continued pressure of the Middlesex forwards, was, however, eventually successful, Tydd-Chapman scoring. The last goal of the match, and the fourth for the Royal Air Force, came three minutes before the end of the game as the result of a free hit against the winners. Dare was penalised for sticks, but Hall stopped the free hit, and passed to Hampton, who scored.

The R.A.F. Boxing Championships.

The Ninth Annual Boxing Championships of the R.A.F. took place at Halton on Mar. 2 and 3. The results of the semi-finals and finals were:—

AKMEN'S EVENTS.

Fly-weights.—AC. Love (Kenley) beat AC. Watkins (Tangmere) on points. L.A.C. Hill (Hendon) beat AC. Winslade (Henlow) on points. Final.—Love beat Hill on points.

Bantam-weights.—AC. Callicott (Manston) (holder) beat AC. Andrews (Flowerdown) on points. Sgt. Ballantyne (Worthy Down) k.o. AC. Ware (Henlow) in the second round. Final.—Callicott beat Ballantyne on points.

Feather-weight.—L.A.C. Blaze (Northolt) walked over. AC. Boteler (Manston) beat AC. Carroll (Sealand). Final.—AC. Boteler beat Blaze on points.

Welter-weight.—AC. McGinn (Henlow) beat L.A.C. Neal (Harlescott) on points. AC. Page (Manston) walked over. Final.—Page knocked out McGinn in the first round.

Middle-weight.—AC. Sully (Kenley) beat AC. Dogod (Flowerdown) on points. AC. Rollason (Larkhill) beat AC. Templeton (West Drayton) in the third round. Final.—Rollason beat Sully in the third round.

Heavy-weights.—AC. Lewis (Bircham Newton) k.o. AC. Monkley (Henlow) in the first round. AC. Forrester (Bircham Newton) beat L.A.C. Winterbourne (Halton), retired after two rounds. Final.—Lewis beat Forrester on points.

Light-weights.—AC. R. W. Garrett (Halton) beat AC. Garrett

(Henlow). L.A.C. Roberts (Duxford) w.o. L.A.C. Devlin (Digby) scratched. Final.—Garrett beat Roberts on points.

Light-Heavy-weights.—AC. Marshall (Felixstowe) beat AC. Thomas (Manston) in the third round. Bye: AC. Mather (Halton). Final.—Marshall beat Mather on points.

OFFICERS' EVENTS.

Feather-weights.—Flg. Off. H. E. Walker (Waddington) beat Flg. Off. A. C. Watkins (Old Sarum) on points. Final.—Walker k.o. Flt. Off. Turton (Digby) in the first round.

Light-weights.—Final.—Flt. Lt. G. V. Howard (Worthy Down) k.o. Flg. Off. F. W. M. Matthews (Eastchurch) in the second round.

Heavy-weights.—Flt. Off. R. A. Wills (Calshot) beat Flt. Off. J. M. Hunter (Digby) on points. Flt. Off. H. J. J. Matthews (Old Sarum) beat Flt. Off. J. D. Bruce (Digby), the referee intervening in the second round. Final.—Matthews w.o., Wills scratched by order of the M.O.

Middle-weights.—Flg. Off. W. Allan (Uxbridge) beat Flt. Off. F. L. Laurance (Netheravon) on points. Flg. Off. S. A. Thorne (Upavon) beat Flg. Off. A. R. F. Baxter (Salisbury) on points. Final.—Thorne beat Allan on points.

Heavy-weights.—Final.—Flg. Off. P. G. Chichester (Manston) (holder) beat Flt. Lt. B. J. Brady (West Drayton) in the second round.

Light-heavy-weights.—Final.—Flg. Off. J. P. Hedermann (Old Sarum) beat Flg. Off. R. E. Nichol (Larkhill) on points.

AUXILIARY AIR FORCE.

Light-weights.—Final.—AC.2 Cassidy (No. 605 Sqn.) beat AC.2 Bird (No. 601 Sqn.) on points.

Middle-weights.—Final.—AC.2 Kinninrade (No. 601 Sqn.) beat AC.2 N. A. Berry (No. 600 Sqn.) in the second round.

No. 46 Squadron Annual Dinner.

No. 46 Squadron, R.F.C. and R.A.F., are holding their Tenth Annual Dinner at the Blenheim Rooms, Hotel Cecil, at 7 o'clock for 7.30 on Boat Race Night, Apr. 2. Each member of the Squadron may bring one guest. Dinner jackets will be worn.

Application for tickets (25s. each including wines), should be made to C. J. Marchant, 10, Bush Lane, Cannon Street, E.C.4. Any member who does not live in London and would like a room booked at the Cecil should notify Mr. Marchant who has arranged for special terms.

No. 55 Squadron Annual Dinner.

The Annual Dinner of No. 55 Squadron will be held at the Trocadero Restaurant, Piccadilly Circus, on Saturday, Mar. 26, at 7.30 p.m. for 8 p.m. Tickets will be 10s. 6d. each, exclusive of wines.

Application for tickets should be made to Sq. Ldr. C. H. Nicholas, R.A.F. Headquarters, No. 22 Group, South Farm, borough.

The Women's Royal Air Force.

The Fourth Annual Dinner of the Women's Royal Air Force will be held at the Victoria Mansions Restaurant, 24, Victoria Street, S.W., on April 30, at 7 p.m.

Application for tickets (6s. each) should be made to the General Secretary, W.R.A.F. Old Comrades' Association, 5, Buckingham Gate, S.W.1.

The History of Eastchurch.

"The History of the Eastchurch Air Station, Sheppey, 1909-1926," 9d. net.

Eastchurch is one of the most interesting Air Stations in Great Britain because it was one of the first places in this country to be concerned with Aviation. This little book will therefore not only be of interest to past and present members of the Services who have been stationed there, but to all those who are interested in the early days of flying and the experiments of the pioneers.

Any profits on the sale of the book will go to the R.A.F. Memorial Fund. The book may be had from the Editorial Office of THE AEROPLANE, 175, Piccadilly, or from Flt. Lt. Empson, R.A.F., Eastchurch, price 11d. post free.

THE INSTITUTO AEROTECNICO ARGENTINO.

The Instituto Aerotecnico Argentino has now been definitely constituted as a scientific institution of a strictly national character and it will be devoted to aeronautical progress, in accordance with the following programme:—

To create aerotechnical laboratories, including wind-tunnels, aircraft for land and sea, balloons, motor-cars, motor-boats, etc. Laboratories for testing materials, engines and chemicals. Research in photography and telemetry as applied sciences. Air navigation and communications. Meteorology. Air Museum, with library and records section. Aerotechnical vocabulary. Publication of Bulletins. Construction of experimental elements. To organise congresses and lectures. To create schools and flying tuition.

The first Executive of the Instituto Aerotecnico Argentino has been formed as follows:—

Chairman: Capitan Vincente A. Almonacid; **Vice-President:** Ing. R. E. Sanchez; **Secretary:** Ing. Alejandro R. Amoretti; **Cashier:** Ing. P. Padilla; **Librarian:** Sr. V. Ortiz Machado; **Members:** Ing. General Enrique Mosconi, Ing. Fausto R. Newton, Ing. Roque Pellizzari, Ing. Carlos Ballester Molina and Sr. Jorge A. Luro.

The founders of the Instituto, in addition to the members of the Board, are Señores Ing. Edmundo Lucius, Doctor Juan Martin de la Serna and Ing. Hugo Pantolini, all of whom have specialised in some aeronautical branch or aeronautical science.

The address of the Institute is Bme. Mitre, 670, Buenos Ayres.

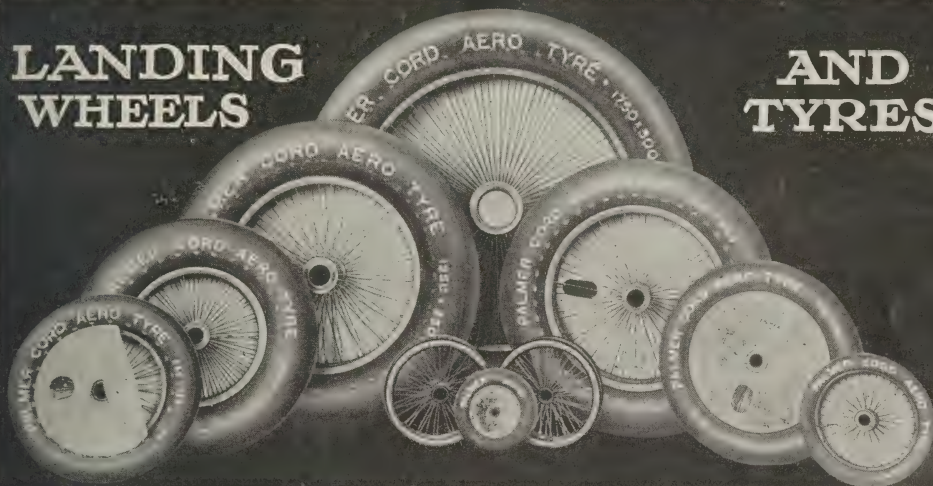


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300 x 60	16	111.12	25.4	Central	"	176	178.	44.45	Central	1000 x 180	148	220.	80.	Central
450 x 60	30	89.	31.75	Central	"	179	178.	55.	132/46	"	149	185.	55.	Central
"	172	130.	38.09	Central	650 x 125	119	178.	55.	132/46	"	155	220.	66.67	Central
575 x 60	21	160.	28.	Central	"	147	178.	55.	Central	"	166	185.	55.	125/60
"	80	150.	38.09	104/46	"	188	120.	34.92	Central	900 x 230	107	185.	55.	Central
"	86	120.	34.92	Central	750 x 125	77	178.	44.45	132/46	"	108	185.	55.	125/60
"	90	150.	38.09	Central	"	92	185.	55.	135/50	"	128	220.	66.67	Central
650 x 65	78	178.	44.45	132/46	"	95	185.	55.	Central	"	137	250.	80.	Central
"	79	178.	44.45	Central	"	99	178.	38.89	132/46	"	157	185.	80.	Central
"	100	178.	38.09	132/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
"	101	178.	31.75	132/46	"	176	178.	44.45	Central	1100 x 220	134	220.	66.67	Central
800 x 75	21	160.	28.	Central	"	179	178.	55.	132/46	"	136	250.	80.	Central
"	180	150.	38.09	104/46	800 x 150	161*	185.	55.	135/50	"	192	185.	60.32	Central
"	186	120.	34.92	Central	"	162*	185.	55.	Central	975 x 225	194	185.	55.	125/60
"	190	150.	38.09	Central	"	163*	185.	66.67	135/50	"	154	304.8	101.6	Central
700 x 75	78	178.	44.45	132/46	"	169*	185.	55.	135/50	1250 x 250	133	250.	80.	Central
"	79	178.	44.45	Central	"	177	185.	55.	135/50	"	154	304.8	101.6	Central
"	100	178.	38.09	132/46	"	183	185.	55.	Central	1500 x 300	115	304.8	101.6	Central
"	101	178.	31.75	132/46	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
700 x 100	77	178.	44.45	132/46	1000 x 150	167	185.	55.	125/60	1750 x 300	139	400.	152.4	Central
"	92	185.	55.	135/50	"	174	250.	80.	Central	"	191	350.	150.3	Central
"	95	185.	55.	Central	"	182	185.	55.	Central	1750 x 350	193	400.	125.	Central
"	99	178.	38.89	132/46	"	187	220.	66.67	Central					
					"	201	185.	60.32	125/60					

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE LIGHTING OF AIRWAYS.

On Tuesday, Feb. 22, Mr. H. M. Green, of the R.A.E., read a very interesting paper on "Artificial Light as an Aid to Aerial Navigation," before the Illuminating Engineering Society. Lights carried on the aircraft itself were not discussed, the paper covered only ground lighting.

AIRWAY BEACONS.

Beacons for marking an air route might be required to meet widely varying conditions. A small number of high-power beacons might be spaced far apart, or a larger number of lower power might be close together. The general rule was that in average visibility a pilot passing one beacon should be able to see the next.

In selecting sites a knowledge of local weather was desirable. Experience showed that the top of a hill was not necessarily the best. To keep clear of mist and low cloud a position slightly above the average level of surrounding country should be chosen and the light mounted on a tower high enough to clear ground mist.

A light should have a distinctive character so that it could easily be distinguished from other lights. It should be reliable and need little attention. It should have maximum visibility for given energy consumption. And there should be no sudden changes in its apparent luminosity when approaching it from a distance.

FLASHING LIGHTS.

The simplest way of giving a light character was to make it flash repeatedly at given intervals. A single flash every five seconds would not be easy to distinguish. It could be mistaken for flashes from car headlights or the like. A beacon should therefore send out a group of at least two flashes, separated by an interval longer than that separating the flashes themselves. The total period should not exceed ten seconds.

The method most commonly used was a group-flashing lens. This consisted of a set of lenses, corresponding in number to the number of flashes in each group, arranged round a common illuminant with a small angle between their axes. Such a system sent out a separate beam from each lens and if rotated round the light gave the effect of a series of rapid flashes.

COLOURED LIGHTS.

Coloured light had not received as much attention as it deserved. This was chiefly because aerial beacons usually had to be unattended, comparatively low power was available for such lights, and any form of colour screen cut off much of the available light.

The strontium beacon, invented by Mr. Toulmin Smith and Capt. Davis, gave colour to the flame itself and gave promising results, but work on it was suspended when the Neon tube became available.

The Neon beacon gave a light of unmistakable colour and could be flashed rapidly, but, as it could not be used with a lens, gave low efficiency.

In the direction of maximum intensity the Neon beacon gave 1.5 candles per watt expended. With a light source of high intensity and a lens of three feet diameter a beam candle-power of 20,000 per watt could be obtained. Despite its low luminous efficiency most pilots seemed to prefer the Neon beacon—a tribute to the importance of character in a light.

ILLUMINANTS.

Dissolved acetylene was a ready illuminant for unattended beacons. Automatic gas burners for unattended marine lights had reached a high stage of development and were at once available for aerial purposes.

The gas beacon was fully automatic. It changed mantles if one failed, rotated its own lens with energy drawn from the gas pressure, lit up at dusk and put itself out at dawn. The time a gas beacon could be left to itself depended almost entirely on the amount of gas provided for it to burn.

There was no reason why electricity should not do all that the gas beacon now did, and provide a light source much more brilliant than gas. But sites for unattended beacons seldom had electricity available.

The paper then discussed in some detail the optical aspects of beacons generally, including methods of computing the beam candle-powers of different lens and light systems, the beam intensity needed for a given range of visibility, and the like.

THE LIGHTING OF THE CROYDON-LYMPNE ROUTE.

This section was followed by a description of the system installed on the Croydon-Lympne route. The lecturer said that this comprised two main route-lights at Cranbrook and Tatsfield, a cone light at Lympne, a Neon beacon at Croydon and aerodrome beacons at the emergency landing grounds at Peshurst and Littlestone.

The power and spacing of these lights fulfilled the requirement that one should always be in sight from any point along the route, as in conditions of average visibility.

The main route lights at Cranbrook and Tatsfield were on elevations of about 600 and 800 feet respectively above sea level, carried on steel towers clear of all surrounding trees. They were of the unattended, fully automatic, gas type with revolving lenses.

Each light emitted six beams, arranged to give two groups of three flashes each of 1/10 second, with an eclipse of half a second between flashes in each group and one of 5.7 seconds between groups. The beam candle power of these lights was approximately 90,000.

The Peshurst and Littlestone beacons were of the same type, but of lower power and are mounted only about 10 feet above the surface. They emitted four beacons only in two groups each of two flashes and had a beam candle power of 13,500.

THE NEON BEACON.

The Neon beacon at Croydon was installed temporarily for experimental purposes, but had become permanent. It consisted of sixteen 20 feet Neon tubes each 30 m/m. in diameter, connected in groups of four in series and supplied with 50 cycle alternating current at 5,500 volts.

It absorbed 8 kw. and the total horizontal candle power is 13,700. The official figure for range was 45 miles, but it is reported to have been seen in clear weather from above St. Inglevert.

It was claimed for Neon light, and for red light generally, that it had a greater range in fog than had white light, and this claim was made more often than figures were produced to support it. At present they preserved an open mind as to how valuable this property

really was, but it had been found that the red glow from the beacon was a useful landmark in fog when the tubes themselves could not be seen.

LANDING LIGHTS.

Lights for night-landings were discussed in the rest of the paper. To land the pilot needed to know the direction of the wind, the position of the aerodrome boundaries and the exact position of the ground.

At aerodromes where a staff was kept and where electricity was available, wind direction was given by electric lamps sunk into the ground in cast-iron boxes with heavy glass covers. A number of lights was arranged so that a letter L could be shown in any one of a number of directions, the stalk of the L corresponding with the wind direction and having the short limb at the end pointing into the wind. (This L system was now to be abolished by International agreement and replaced by a set of isosceles triangles of three lights, with the apices pointing upwind.)

At emergency landing grounds an automatic illuminated wind vane in the shape of a T was used. This was kept with the head of the T into the wind by a vertical fin. A lantern of the automatic gas type threw a flashing beam along each branch of the vane, which was visible as a distinct T either by day or night at 2 to 3 miles' range. Aerodrome boundaries were marked by small automatic gas units placed round the landing area. They used open type burners burning pure acetylene, flashed ninety times per minute and were fitted with red screens.

THE FLOODLIGHT.

To light the ground at the moment of landing, a floodlight system was used. The optical system was a drum lens of 500 m/m. focus equipped with a high intensity arc lamp giving 70,000 c.p. without the lens. This was mounted on a trolley so that it could be moved to any desired point on the aerodrome.

The beam from the lens had a vertical divergence of about 14° , and a horizontal divergence of 30° . The area lighted for landing was semi-circular with a radius of 1,500 feet from the light. The strength was about 850,000 candle power.

When in use the floodlight was on the aerodrome boundary pointing directly into the wind. The pilot flew in over the light, usually slightly to the left of it. The light itself was therefore always out of sight, and the only possible source of glare was reflection from objects on the machine.

These glare effects were not important because by the time the machine was in the beam it was within a few feet of the ground.

FOG LIGHTING.

On flying in fog the paper had little to say. The author digressed to explain how by the use of wireless position-finding plus the leader cable they hoped to bring an incoming aeroplane to a position accurately above the aerodrome. The machine could by this method be brought quite close to the aerodrome surface, but the actual landing must be done by light.

Probably Neon tubes laid horizontally at intervals along the landing straight would be the form of light used. Observations made at Croydon last Winter in fog showed that such lights were very distinctive and clearly marked the landing area. On a foggy night when the ground visibility was 80 yards the Neon tubes were visible as tubes at 200 yards.

In a daylight fog artificial light to mark an aerodrome seemed to be out of the question. The sunlight reflected from the top of the fog made it impossible to see anything through the fog. At night the red pool of light seen on the fog surface from the Neon lights below it, could be used to show the position of the aerodrome.

THE DISCUSSION.

The paper was followed by a long and animated discussion, of which only the points of more direct aeronautical interest are here noted.

MR. TOULMIN SMITH said that experience of night flying at times when there was a good deal of low cloud showed that the present beacons often were not visible for long enough at a time to identify them, even when they and their positions were known to the observer. That the light intensity of a beacon should not change rapidly as one approached was very important. In one set of night flying tests a particular beacon was clearly visible at 20 miles, but disappeared at 7 miles and reappeared a mile later. This proved to be because at the particular height they ran into a region where the beam intensity fell suddenly at 7 miles, and eyes which had become accustomed to the previous intensity failed to recognise it. It reappeared as the eye got used to the absence of the lighter beam.

CAPT. TYMMS issued a warning against assuming that route lighting by a number of closely spaced beacons was either necessary or desirable.

Air Navigation should be based on the same principles as marine navigation, and could be carried out by the use of the compass plus wireless with all necessary accuracy. The commercial aeroplane ought to keep away from the earth and not to be tied to the observation of ground marks.

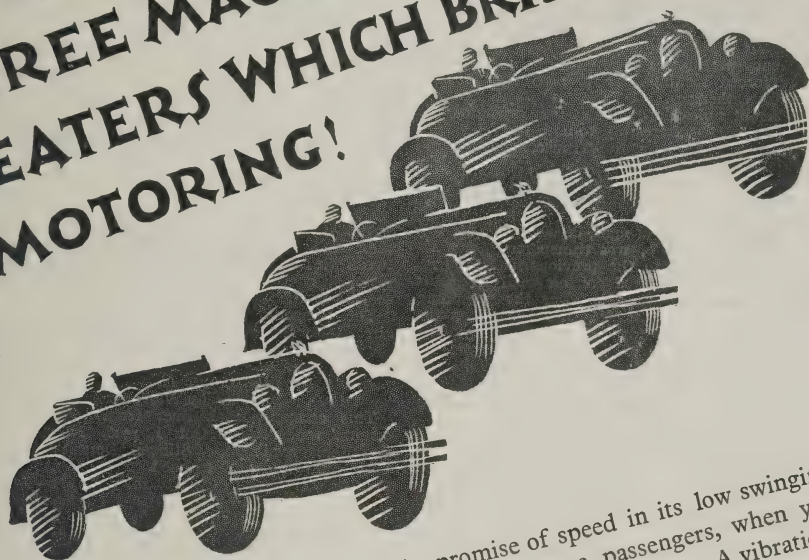
Beacons ought to be required only at terminal aerodromes, or in their immediate vicinity. If there were no other reason the marking of routes by closely-spaced beacons became prohibitively costly on anything like a long route. It could not be done, for instance, on the Cairo-Karachi route, and it was not necessary.

There seemed little doubt that for such beacons as were necessary they would have to use the Neon type of beacon. This was much less expensive than the optical systems required for beacons of the light-house type. The advantage of Neon lights lay not only in the distinctive colour, it did radiate on a long wave length, and had greater fog penetration than white light. Fog was the worst problem which we had to deal with and we might have to go to still longer wave lengths than the visible red.

A speaker, whose name one failed to catch, agreed that the Neon was the most effective fog light we had yet, but were we using it to the best advantage? The cone lights at Lympne and Croydon were visible and distinctive at a surprisingly long range for their relatively low power, and he believed this was due to their large area. Possibly the penetration of the Neon beacon could be improved by careful arrangement of the tubes to give an increased area of light source.



THREE MAGNIFICENT 2-SEATERS WHICH BRING NEW JOYS TO MOTORING!

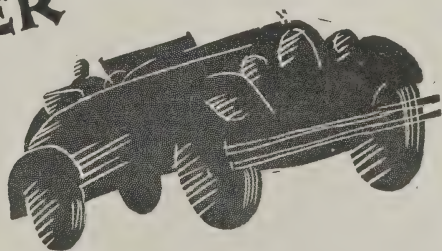


CHRYSLER '60' or '70' or '80'—you sit in the deep upholstered seat with your companion by your side, and every control finger-light to the touch and within easy reach. Like a pilot in his aeroplane you judge your speed by the song of the wind in your ears. Not on the roughest roads will you feel any shock or jolts. Look at the beauty of the car from the outside—

the promise of speed in its low swinging lines. Two extra passengers, when you wish, in the big seat behind. A vibrationless six-cylinder engine, with its crankshaft running smoothly on seven large bearings. Hydraulic four-wheel brakes of smooth, instant and unfathomable power. Here is a car which will give you endless pride and joy to drive!

There are four magnificent ranges of open and closed Chryslers—to suit every pocket, and with top speeds from 50 to 80 m.p.h. The low priced 15/50 h.p. '50' from £265. The light 21/60 h.p. '60' from £380. The world-famed 23/75 h.p. '70' from £595. The big 29/95 h.p. '80' from £868. See these splendid cars in the dealer's showrooms. Write for one of the new catalogues to-day.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE U.S. AIR MAIL.

The following brief particulars of the operations of the Government and Contract Air Mail routes, extracted from the *Aero Digest*, of New York, are of interest as showing what is being done in the way of unsubsidised commercial aviation in the United States.

The Transcontinental New York—San Francisco (2,669 miles) and the *New York—Chicago* (726 miles) night mail routes.

Operated by the U.S. Post Office:—

For the year ending June 30, 1926, a total mileage of 2,256,137, of which 945,954 was made at night, was covered on a schedule calling for 2,411,059 miles of mail trips, thus showing an efficiency percentage of 93.

The number of forced landings due to mechanical failure was 155 and due to weather 707.

The total number of miles flown in day-time was 1,602,338 and at night 945,554. It is interesting to note that 93.73 per cent. of the mileage scheduled for the Transcontinental line (which is mostly flown by day), and 94.22 per cent. of the night flying between New York and Chicago, was completed, so that the night flying is relatively more reliable and easier than day flying.

During this period 353,641 lbs. of mail, of which 107,047 lbs. was carried on the night service, was transported, as compared with 232,513 lbs. carried in the previous fiscal year.

The total excess postage received for air mail transport was \$861,865, an increase of \$259,237 over the preceding year. Of the former amount \$160,881 was received on the overnight service. On an appropriation of \$2,885,000, the operation of the Government Air Mail routes cost \$2,782,422.

The length of the Transcontinental route is 2,669 miles, of which 2,045 is equipped for night flying. There are 18 regular, fully-equipped landing fields, and 92 emergency landing grounds with resident caretakers.

Since the service has been in operation its aircraft have covered a total of 13,074,524 miles.

Both these routes will shortly be turned over to private contractors.

Contract Air Mail Route No. 1. Boston—New York (192 miles). Operated by *Colonial Air Transport Inc.*

This service began operations on July 1, 1926, and since that date has been in daily operation between Hadley Field, New Brunswick, Hartford and Boston. The company has had no accidents and no forced landings due to mechanical failure.

Owing to the delay in the lighting of this route by the Department of Commerce for night-flying, the schedules have been altered to such an extent that little or no time can be gained by the use of the air mail. This unfortunate circumstance has reduced their load to a minimum, but with the lighting system approaching completion this should soon be remedied.

Fokker Universal monoplanes (one 200 h.p. Wright Whirlwind engine) are used, but these will shortly be either augmented or replaced by the Fokker F.VII-3m. (three 200 h.p. Wright Whirlwind engines) a number of which have been purchased.

Contract Air Mail Route No. 2. Chicago—St. Louis (278 miles). Operated by the *Robertson Aircraft Corporation*.

Since its inauguration on Apr. 15, 1926, this service has made a total of 392 single trips totalling approximately 108,976 miles, an efficiency of 95 per cent. The efficiency percentage is based on the arrival at destination in time for connections.

From their date of opening to Dec. 31, 1926, they have received from the Post Office \$50,458 for mail carried.

Contract Air Mail Route No. 3. Chicago—Dallas (987 miles). Operated by *National Air Transport Inc.*

This service began operations on May 12, 1926. In its first six months it covered 343,346 miles and carried over 2,000,000 letters. The mileage figure shows an efficiency of 99.24 per cent.

On scheduled trips only four forced landings have been made as the result of mechanical failure, an approximate average of one in 85,000 miles.

The route is operated in two divisions, Chicago—Kansas City (460 miles) and Kansas City—Dallas (540 miles). In both directions the mail changes aeroplanes at Kansas City.

Late in 1926 this company signed a contract with the American Railway Express Company to carry package freight over the contract mail route and to extend that line from Chicago to New York for express purposes. This contract will begin on Apr. 15, 1927.

Contract Air Mail Route No. 4. Salt Lake City—Los Angeles (600 miles). Operated by *Western Air Express Inc.*

This service began operations on Apr. 17, 1926, and since that date has covered over 330,000 miles over very difficult country without any mishap other than of a minor nature.

Five weeks after its inauguration this company opened its line to passenger traffic. When the line opened the average volume of air mail matter to and from Southern California did not exceed 40 lbs. daily. During the first month of this

direct service, connecting at Salt Lake City with the Transcontinental Route, this daily average increased to 220 lbs., and in December, 1926, this figure increased to 370 lbs.

This company has become a definitely profitable business concern in its first year of operations.

Contract Air Mail Route No. 5. Elko—Pasco (435 miles). Operated by *Walter T. Varney*.

This line opened on Oct. 1, 1926, and up to date has flown 1,463 hours with an approximate mileage of 146,000 over one of the most difficult routes in the United States.

Contract Air Mail Route No. 6. Cleveland—Detroit (91 miles).

Contract Air Mail Route No. 7. Chicago—Detroit (237 miles). Both operated by the *Ford Motor Company*.

No operational reports of these routes have been made available.

Contract Air Mail Route No. 8. Seattle—Los Angeles (1,121 miles). Operated by *Pacific Air Transport Inc.*

Inaugurated on Sept. 15, 1926. This company up to Dec. 31 covered a mileage of 250,000, carrying 19,658 lbs. of mail. They also carried 102 paying passengers in their open mail planes.

As the time schedule requires their leaving Los Angeles at midnight and Seattle before daylight the company lighted their route between Los Angeles and San Francisco and between Seattle and Portland with ten revolving beacons of 7,500,000 candle power and twenty intermediate beacons of 400,000 candle power at a cost of \$15,000.

The company proposes to purchase a number of cabin aircraft for the development of their passenger service.

The fare from Seattle to Los Angeles is \$132.50 with intermediate fares in proportion to the distance covered.

Contract Air Mail Route No. 9. Chicago—Minneapolis (337 miles). Operated by *Northwest Airways Inc.*

This company took over from Charles Dickenson, the original tenderer, on Oct. 1, 1926. No figures of its operations are available. Stinson-Detroit biplanes (Wright Whirlwind engines) are used.

Contract Air Mail Route No. 10. Atlanta—Miami (683 miles).

Operated by *Florida Airways Corporation*.

This service began operations on Apr. 2, 1926. Up to the end of the year it covered 260,124 miles, 90 per cent. of the scheduled mileage.

Of this total mileage, 22,984 miles were special flights, one of these carrying a cargo of \$2,000,000 into the Florida Tidal Wave area, for relief work.

During the period of operation the service was extended to Jacksonville. On June 1 the company started passenger-carrying and up to the end of the year 939 passengers were carried mostly between Miami, Fort Myers and Tampa.

In the New Year the service was suspended pending the installation of night-flying equipment.

At the same time the U.S. Government invited bids for an air mail route from New York to Atlanta via Philadelphia, Washington, Richmond and Greensboro, a total distance of 733 miles, and Florida Airways Corporation are making every effort to obtain the contract.

Contract Air Mail Route No. 12. Cheyenne—Pueblo (199 miles). Operated by *Colorado Airways Inc.*

This service began operations in May, 1926, and have been flying 400 miles regularly every week. It also carries passengers at a rate of \$50 from Cheyenne to Pueblo and return.

Contract Air Mail Route No. 13. Philadelphia—Norfolk (278 miles). Operated by the *Philadelphia Rapid Transit Company*.

This route was organised in connection with the 1926 Philadelphia Sesqui-Centennial Exhibition and was suspended on Nov. 30, at the close of the exhibition.

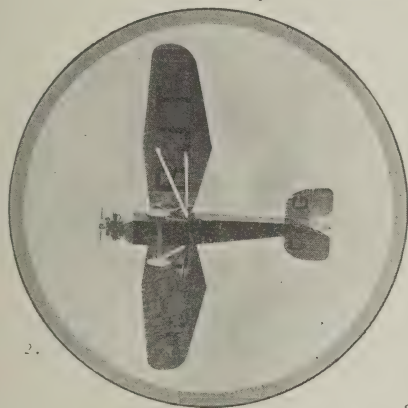
In five months' operation the service covered 93,770 miles, carried 3,695 passengers, and 1,377 lbs. of mail. Out of 688 trips scheduled, 75 were cancelled and 7 were uncompleted because of bad weather conditions.

The total revenue was \$50,600 (passengers \$46,200, mail and express matter \$4,400). The operating loss was \$118,400.

Although this figure may appear unusually high, consideration must be given to the fact that this service was conceived primarily as an exhibition of modern transportation service at the Sesqui-Centennial Exhibition. The special equipment and operation of large omnibuses to and from the fields, specially designed and built passenger stations and hangars, the leasing and grading of a private field 10 minutes from the centre of Washington, the advertising, publicity, posters, circulars, sky-signs, passenger insurance, etc., all contributed heavily to the overhead charges and therefore cannot be used for purposes of comparison with other lines.

"THE RED AIR FIGHTER."

If any readers happen to have copies of "The Red Air Fighter," by Captain Baron von Richthofen, published a few years ago, which they are willing to sell, will they please communicate with the Editor of THE AEROPLANE and state a price for their copies?



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Our designs comprise all types from private single seaters to large twin engined bombing machines.

In these days road travel is anything but pleasant. By owning a light passenger machine you can recapture the joys of travel. We intend to publish shortly particulars of Widgeon III, a light passenger Monoplane which will be within reach of the man of moderate means. The machine folds, and will go comfortably into an ordinary garage. Widgeon II, the parent machine was the fastest machine in the Grosvenor Cup Race this year, with an average speed of 105.5 m.p.h.

We are supplying numbers of machines to the Royal Air Force both at home and abroad. We have our own 4 ft. wind channel for testing models, and our extensive aerodrome is situated by the side of the works for testing the finished machines. Enquiries are solicited for aircraft for all purposes.

WESTLAND AIRCRAFT FOR BUSINESS OR PLEASURE.

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THE KHARTUM-KISUMU AIR LINE.

The promoters of the Khartum-Kisumu Air Line, to wit the North Sea Aerial and General Transport Ltd., and Captain T. A. Gladstone deserve every congratulation on the success of their inaugural trip, the return journey from Kisumu to Khartum having been successfully made on Feb. 15 and 16.

The crashing, during her trial trip on the Nile, of the *Pelican*, the Blackburn-de Havilland-Short-Puma combination, which was specially built for the job, may have been regarded as an evil omen. But there is an old saying among horse-racing people that "A slow starter is a strong finisher." And one has noticed that the things which begin badly generally develop well. There is no more striking instance of this rule than Western Australian Airways, whose operations began by the crashing of the very first machine and the death of its pilot and have run with 100 per cent. efficiency ever since.

Also the initial mishap to the Khartum-Kisumu line is an instance of the old proverb on which the whole Buddhistic faith is based, that "All things work together for good." Although the original scheme had a good deal of publicity, some of it was rather of the wrong sort. And the wrecking of the *Pelican* certainly obtained publicity which was bound to be injurious. But immediately on top of the accident the Air Ministry came forward and lent a Fairey IID, with a Napier engine to Capt. Gladstone, an action which immediately told the whole world, by way of *Reuters*, that the venture had the whole-hearted approval of the British Government. The promoters of the line knew this before, but people in general did not know it and so the loan of the IID created a very good impression, especially in Central Africa itself where it was most important that people of the British Central and East African territories should know that the new air line scheme was approved.

The second trial trip was to start on Saturday last, Mar. 5. The Director of Civil Aviation, Air Vice-Marshal Sir Sefton Branner, who recently paid a brief visit to Athens, presumably with the idea of discussing air line possibilities along the Mediterranean, went straight from Greece to Khartum and was to accompany Capt. Gladstone on this trip, so as to discuss with the Governments of the territories concerned what is expected from them in the way of backing the new service.

Incidentally, a new factor is imported into aviation by this service. Gellatly, Hankey and Co. (Sudan) Ltd., who are one of the greatest trading concerns in Equatorial Africa, are agents in the Sudan for the North Sea Aerial and General Transport Ltd. This firm was responsible for the distribution, within the territory which it serves, of the petrol and oil supplies for the trip made by Mr. Alan Cobham to the Cape and back. And it is good to find a firm of such standing now actively engaged in aviation.

Incidentally, there is a certain humour in the fact that the first seaplane service to be organised by the North Sea Aerial and General Transport Ltd. should operate in Central Africa with its office at Khartum. The mere title of the firm must be soothing to the British exiles who have to deal with it.—C. G. G.

PIONEER AIRCRAFT INSTRUMENTS.

THE AEROPLANE has recently received from the Pioneer Instrument Company, of 754, Lexington Avenue, Brooklyn, N.Y., two pamphlets dealing respectively with the Pioneer Air Speed Indicator, and the Pioneer Hydrostatic Fuel Level Gauge. The pamphlets are evidently examples of a series of which that dealing with the Pioneer Turn Indicator (see *THE AEROPLANE* of Jan. 19) is one.

The two instruments now in question are both of a type more or less well known in this country, though naturally in detail they differ slightly from their British-made equivalents. The only novelty disclosed is that an air-speed indi-

cator of the vertical-scale type is now a standard production and is said to be coming into extended use in the U.S.

The illustrations which were published in this paper on Feb. 2, showing the very great saving of dashboard space that can be secured by the use of this type of instrument seem to supply an explanation of this extended use.

What is novel—or seems novel—in this country is the extremely thorough manner in which the Pioneer Instrument Company keep their potential customer informed as to the qualities of their products. Each of these little pamphlets gives all the information concerning the particular instrument, other than such as can only be acquired by practical experience, that seems likely to be useful to anybody.

Outline dimensioned drawings giving all data required for the installation design, figures for the weight of the instrument and all accessories, instructions as to the precautions to be taken in installation and operation, and warnings as to probable causes of error or bad working are all included.

It cannot be said that these pamphlets supply any very novel information. It may, however, be remarked that in this country one has not yet seen any similarly concise and complete set of data concerning a British range of instruments. They may exist, but one has doubts. And if they do the makers of that particular range of instruments might do worse than circulate their literature a little more liberally.

MR. CHADWICK'S ILL FORTUNE.

His many friends will learn with great regret that Mr. R. Chadwick of A. V. Roe and Co. Ltd. is at present in a nursing home in London recovering from the effects of an operation.

Some old-timers will remember that many years ago Mr. Chadwick had a serious crash in which he sustained among other injuries a badly broken arm. This arm had to be fitted with metal fish-plates and recently these plates have become loosened. A certain amount of damage to the bone has occurred and it has been necessary to remove some of the damaged bone and to graft in a new piece from his leg.

Mr. Chadwick is, one is glad to say, progressing very favourably and all will hope for his speedy recovery.

ROHRBACH RECORD.

On Feb. 4 the Rohrbach-Roland three-engined commercial monoplane, piloted by Herr Steindorff, chief pilot of the Deutsche Verkehrsfliegerschule, Staaken, put up five new World's Records. These are:—(i) Speed over 500 kms. carrying 1,000 kgs. of useful load; 165.9 km.p.h. (103 m.p.h.); (ii) Endurance carrying useful load of 2,000 kgs.: 4 hrs. 17 mins. 49 secs.; (iii) Distance covered carrying useful load of 2,000 kgs.: 600 kms.; (iv) Speed over 100 kms. carrying 2,000 kgs. useful load: 173.9 km.p.h. (107.9 m.p.h.), and (v) Speed over 500 kms. carrying 2,000 kgs. useful load: 165.9 km.p.h. (103 m.p.h.).

The unladen weight of the Roland was 3,830 kgs. The loaded weight, including 2,000 kgs. of iron rails and loaded sand-bags, crew, fuel and oil was 7,100 kgs. With this load the machine took off in 15 seconds.

After covering five laps of the Staaken-Buckow-Brandenburg-Staaken course, and during the sixth lap, a water-jacket of the central engine fractured, the cooling water ran out, and the engine had to be stopped. The last 60-70 kms. of the sixth lap was completed on two engines.

In spite of this, the pilot continued to circle Staaken aerodrome for half-an-hour in order to get the endurance record. Finally a camshaft cap of the starboard engine tore loose, making a landing necessary.

Flying a distance of 150 kms. with only two-thirds of the total engine power, bears distinct evidence of the remarkable flying properties of the Roland. The total weight of the machine on landing was 6,500 kgs. which incidentally is 250 kgs. in excess of the flying structure weight as approved by the Deutsche Luft Hansa.



THE ROHRBACH-ROLAND.—An all-metal commercial monoplane fitted with three 230 h.p. B.M.W. engines and normally fitted to carry 10 passengers and a crew of two. This actual machine broke five weight-carrying records on Feb. 4, as described above.

HANDLEY PAGE SLOTTED WING AND CONTROL.

"The influence of this development upon stalled flying may be judged from the statement of one of the R.A.E. pilots that 'it is difficult for the pilot to judge from the effect of the control whether the aeroplane is stalled or not,' i.e., the control is equally good above and below the stall."

AERONAUTICAL RESEARCH
COMMITTEE

(Stability and Control Panel)

Report No. 1000 (p.38).

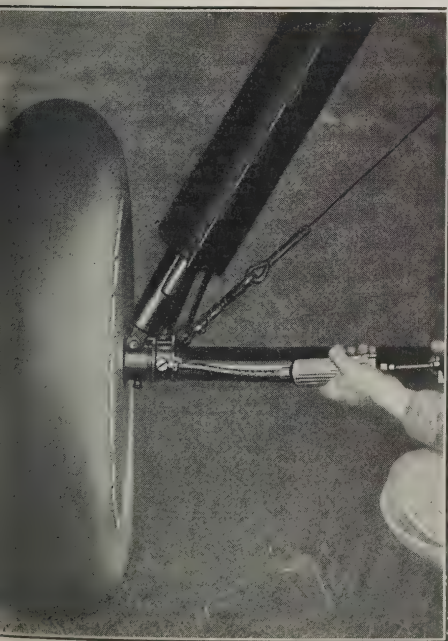
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THE SPINNING OF AEROPLANES.

The paper by Mr. L. W. Bryant, of the N.P.L., and Mr. S. B. Gates, of the R.A.E., on "The Spinning of Aeroplanes," which was read before the Royal Aeronautical Society on Mar. 3, is a long and complicated analysis of the forces and motions involved in the spin.

The paper does not deal with the problem of the prevention of an undesired spin by a stalled or nearly-stalled aeroplane, but is rather directed to throwing light on the very marked differences which exist between different types of aeroplane when spinning has been allowed fully to develop.

The practical importance of this subject arises from the fact that spinning is a manoeuvre of definite value for military purposes and that although the majority of aeroplanes can be made both to spin and to stop spinning by certain fairly well defined uses of the normal controls a certain small number of aeroplanes cannot easily be brought out of a spin, and are definitely dangerous on this account.

It is therefore desirable to know exactly what are the causes of the varying behaviour of different types of aeroplanes in the spin in order that such dangerous characteristics may be avoided by appropriate precautions in design.

Spinning is a very complicated motion, and the authors admit frankly that there is still much to be learned as to the exact processes involved, and that it is not possible in the present state of knowledge to calculate with any sort of exactness what forces are involved, or to give any simple and certain rule for avoiding dangerous spinning characteristics in a given aeroplane.

Nevertheless certain general conclusions have been reached which indicate the general nature of the precautions which may be taken.

Spins of the dangerous type—those from which recovery is extremely difficult—are always very rapid spins. Rapid spinning always occurs at very large mean angles of incidence, angles much larger than can be attained by the use of the controls in straight flight. From this it may be deduced that in the spin there is acting on the aeroplane a pitching couple (tending to pitch the nose of the machine upwards) caused by the spin which is large compared to the couple which can normally be produced by the elevator.

This couple is not due to the wings themselves. The movement of the Centre of Pressure of a stalled wing tends towards stability—that is increasing incidence is accompanied by a backward movement of C.P. This tendency is however less in any biplane than in a monoplane, and is least for a backward stagger. The more forward stagger the more stable is the biplane. This is simply explained by the blanketing effect of the lower wing on the upper one.

The only large pitching couple which tends to increase the incidence in a spin is an inertia couple, really the effect of centrifugal force on the various masses of the aeroplane caused by the rotation of the machine. This couple may be very large in the case of a machine in which large weights are distributed along the fuselage, but would usually be well within the control of a normal elevator if that elevator could be regarded as being as effective in a spin as it is in normal flight.

But there are good reasons why neither elevators nor rudders should be regarded as giving their normal effect in a spin. The tail plane must be at a very large incidence, and side-slipping very markedly. The whole tail is working in the wash of rapidly rotating wings, and is usually largely shielded by the body itself.

Measurements of the forces on the rudder and fin of a B.A.T. Bantam model have even shown a reversal of the sign of the forces on these units with the model in rotation at large angles of incidence.

It is agreed by pilots that standard ailerons are entirely ineffective in the attempt to recover from a spin. It is established that they have a powerful effect in starting a spin and some in controlling the nature of the spin itself, the spin being markedly more rapid when the ailerons are set "against" the spin than when used with it. It is therefore not easy to believe that they have no effect in recovery, but the effect if any has not yet been separated from the pilots' observation of the results of other controls.

The slot and aileron control is exceedingly effective in stalled flight as a control for preventing spinning. Model tests suggest that its efficiency is greatest when the rate of rotation is zero (i.e., there is no spin) and that it becomes increasingly ineffective as the rate of rotation increases.

Full scale tests (i.e., real flying tests) on the Avro however showed that the slot and aileron control was able to bring about recovery from a spin even with the elevators and rudders set against it—the result which could not have been predicted from the model tests. This control therefore may prove to be more valuable than could have been expected.

The general conclusions reached by the authors at the present stage may be summed up as follows:—

(1) Normal present-day aircraft when in a spin have only a very small margin of elevator and rudder control available to bring them from the spin into straight flight at an angle below that of the stall. An increase in the power of elevator and rudder controls by about 30 per cent. more than is needed for normal flight would give an ample margin.

(2) Better results are to be expected from an intelligent arrangement of control surfaces (to avoid blanketing by the body or mutually by the different surfaces) than by increase in the size of surfaces.

(3) Weights carried on the aircraft should be massed together and not distributed along the body more than is essential—otherwise the inertia couple which has to be overcome by the elevators in recovering from a spin may become very large.

(4) Backward stagger of a biplane should be avoided and as large a forward stagger as possible should be adopted in order that the wings themselves may provide as large a moment as possible in the direction required for recovery.

[All of this must seem perfectly obvious at first sight to any rule of thumb engineer who has any ability to visualise what air-streams do under given circumstances and who has had any experience of what weights do when they get moving. If our scientists would tell us what to do to prevent troubles of this sort, instead of spending time and money on experiments and calculations to explain what practical people know already, we should make quicker progress towards safe flying.—C. G. G.]

THE BOURNEMOUTH EASTER MEETING.

One is all against holding the classic air races of the year at Bournemouth and turning them into purely local events. But one is entirely in favour of holding local meetings there even though it means the giving up of Easter and Whitsun holidays for the unfortunate people concerned in them. After all these little sporting meetings are very good propaganda if the public interest in them can be maintained.

A popular programme with this end in view has been arranged for Easter. The begin-all and end-all of any race meeting for many people is the presence of bookies and there will be plenty of these.

A novelty will be an Aerial Oaks for women pilots only. There will also be an inter-hotel and an inter-business house race. That is to say any of the local hotels and shops can, by application to the Royal Aero Club, hire a machine which will fly under their name.

There will be a race open to the public who can by application hire a machine for the Bournemouth Citizens' Race. A machine will be entered in Mr. Smith's or Mr. Brown's name or whatever the name is and the entrant may fly as a passenger. Machines can be booked any time and as the race will be at the end of the meeting the entrant will be able to follow the form of the prospective machines and pilot throughout the meeting.

Other events will be a class scratch race for two-seater machines with Cirrus I engines, for which the Cirrus Engine Co. Ltd. have offered a prize, a Club instructors' race, a flying school instructors' race and a private owners' race.

The intervals will be filled by stunt flying and a balloon-bursting-by-flying-into-them contest.

The racing will take place on Good Friday, Saturday and Easter Monday and by the stout-hearted work of the local churches we shall be able to enjoy a well-earned rest on Easter Sunday.—G. D.

[This idea of hiring machines for the races to hotels and shops and citizens is about on a par with hiring donkeys for a race at a seaside beach. It reduces flying under Royal Aero Club rules to the level of the roundabouts at a country fair. It may be commercial aviation at the moment, but it is not likely to attract the better class of owner-pilot to air-racing, nor is it likely to attract sportsmen of the true amateur class to aviation. Still, it is about what one might expect from the Royal Aero Club.—C. G. G.]

THE KILLJOY CUP.

The Times of Feb. 23 says:—

Protests from Churches of all denominations and from lay organisations connected with Churches have resulted in the abandonment of the proposed Sunday aviation meetings for exhibition flying and passenger flights at the Bournemouth racecourse, in connection with the week-end race meetings to be held there during Easter, Whitsun-tide, and August holidays.

A statement to this effect was made yesterday by Mr. W. J. McCabe, director of the racecourse company. The board of directors thought that the increasing popularity of race meetings and other events at the racecourse might be injured if the sympathies of any section of the local community were alienated. Although unable to cancel the flying on Good Friday this year, no more Good Friday meetings are to be arranged.

A meeting of the leaders in the protest yesterday afternoon, in appreciation of the manner in which the objection had been met, decided to present a cup to the racecourse directors to be known as the "Killjoy Cup," for competition at aviation meetings on any other days but Sundays and Good Fridays. Twenty guineas was immediately subscribed towards the cost.

BAD VISIBILITY.

Here we are approaching Easter and those who are supposed to control the sport of British aviation have not yet fixed definitely one single date for important flying events. A correspondent the other day wanted to know the date of the Aerial Derby, if any. All one could tell him was that nobody knew whether there would be a race for the Aerial Derby or, if so, whether it would be flown over the Bournemouth, Salisbury Plain or Cranwell areas.

The people who are responsible for our air racing may be air-minded, but they are certainly suffering from very bad mental visibility. In all other sports—horse racing, motor racing, yacht racing, rowing, athletics and so forth—the dates are fixed a year and more ahead.

A CORRECTION.

Mr. Stephan of the Fokker Co. writes as follows:—

In *THE AEROPLANE* of Feb. 16 there has been published on page 126, under "Dornier Wal in Holland," that "The N.V.I. has also received an order to construct a twin-engined float seaplane to be known as the type T.IV. This will also be equipped with 2 Lorraine-Dietrich engines."

We draw your attention to the fact that, although the N.V.I. has received an order for a series of Dornier machines, the N.V. Nederlandsche Vliegtuigenfabriek "Fokker," has received an order to construct a twin-engined T.IV float seaplane, so that this will not be constructed by the N.V.I. (Nationale Vliegtuig Industrie).

We should therefore be much obliged if you would correct it in a following number.

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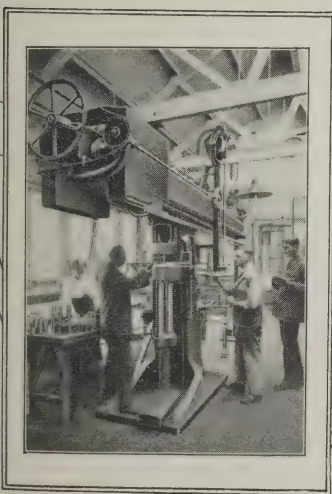
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THE FLYING CLUBS.

The London Aeroplane Club.

Report for week ending Mar. 6.

There has been no flying during the week.
The total flying time for February was 176 hrs. 45 mins., as follows:—
Dual Training, 113 flights, 55 hrs. 10 mins. Solo Training, 14 flights, 4 hrs. 35 mins.
Solo Flying, 96 flights, 36 hrs. 45 mins. Test Flying, 63 flights, 10 hrs. 35 mins. Passenger Flying, 34 flights, 12 hrs. 40 mins.

Total, 320 flights, 176 hrs. 45 mins.

The Lancashire Aero Club.

Report for week ending Mar. 5.

Total flying time for week 7 hrs. 50 mins., made up as follows:—
Dual with Mr. Brown: Mr. Crosthwaite 55 mins., Miss Brown 35 mins., Mr. Ruddy 30 mins., Mr. Dickinson 25 mins., Miss Emery 20 mins., Mr. Forshaw 10 mins.

Solo: Mr. Michelson 1 hr. 15 mins., Mr. Costa 45 mins., Mr. Goodfellow 25 mins., Mr. Lacayo 25 mins., Dr. Wade 25 mins., Mr. Hardy 15 mins.

Joy-rides: With Mr. Cantrill—Mr. Chadwick 25 mins. With Mr. Goodfellow—Mr. Prince 10 mins.

Test flights: 50 mins.

It may be true that this is not a country fit for heroes to live in, but at least it has an atmosphere fit for heroes to fly in. A bit more of it and the Clubs will need all their Hampshire Hopfulness, London Liveliness, Midland Masterfulness, Yorkshire Youthfulness, Newcastle Never-say-die-ness and Lancashire Let-em-all-come-ness to keep on keeping on.

During the week Mr. Michelson completed his 20 hrs.' solo flying and will no doubt join the ranks of Club "joy-ride" pilots in due course.

Further interesting news has come to light about Mr. Cantrill's attempt to fly to Norway. Apparently, having exhausted every means of getting across the Pennines, short of following the railway line through the tunnels, he tried to get a lead from a sports car which was going across at a fair pace with its headlights on owing to the general gloom and murk. Unfortunately the attempt was foiled by the fact that the driver, after leading in this fashion for a few miles, stopped and waited in an expectant attitude. It is thought that he had been reading the papers and was expecting Mr. Cantrill to land on the road alongside him and ask for a fill-up from his spare tin.

Mr. Bartrum, who has been our ground engineer (rigger) since the early days of the Club, was smitten down with pleurisy about a fortnight ago and was only just recovering when he lost his mother on Sunday. One offers him one's own and the Club's sincerest sympathy.

The Newcastle-upon-Tyne Aero Club.

Report for week ending Mar. 6.

Total time for week (no flying until Saturday, owing to fog, rain, or wind) 7.00 hrs., made up of 2 hrs. 20 mins. dual, 4 hrs. 25 mins. solo ("A"), and 15 mins. engine test.

The Club has only one Moth on service now, but it is hoped that the Avro will be going again in a week or so.

The following members flew under instruction with Mr. Parkinson (who has returned from C.F.S. full of beans and with an excellent report and an A.T. Certificate): Mr. Rasmussen, Mrs. Heslop, Mr. Turnbull, Mr. Wilson, and Mr. Miesegaes.

"A" Pilots: Mr. C. Thompson with Mrs. Heslop and Mr. Luckman. Dr. Dixon with Mr. Browell and Mr. Howard. Mr. R. N. Thompson. Mr. N. S. Todd with Mr. A. Bell.

Mr. Irving is making excellent progress towards recovery from his accident. The broken arm is likely to be rather a time in becoming strong enough to enable him to fly, but he is very anxious to get into the air again.

The Yorkshire Aeroplane Club.

Report for week ending Mar. 6.

Total time flown 20 hrs. 20 mins. Solo 5 hrs. 45 mins. Dual instruction 1 hr. 25 mins. Tests 10 mins. Cross-country flight 3 hrs.

The last item refers to Messrs. Wayman and Barnes' attempt to reach Norwich on Feb. 25, their flying time not being available for last week's report.

On Friday, Mar. 4, Capt. West went over by train to Brough with the intention of flying back the same day in the Avro, the loan of which to the Club has been kindly offered by the North Sea Aerial and General Transport Limited. Unfortunately the C. of A. of this machine required to be renewed so that he was unable to bring it back.

Mr. Mann took LS over on Sunday and they both returned in her after lunch.

On Sunday Messrs. Wayman and Dawson between them gave flights of 5 mins. each to four prospective members (Messrs. Biggs, Bullock, Small and Wilkinson).

The following flew solo:—Messrs. Mann, Dawson and Wayman. Dual:—Messrs. Wilson, Batcock, Ling and Clapham.

The Wren was experimentally run up in the hangar on Sunday morning when the engine attained a maximum of 2,500 r.p.m., but no attempt was made to take it up without the owner's (Mr. Smith's) permission.—G. C. F. K.

The Midland Aero Club.

Report for week ending Feb. 19.

Total flying time 7 hrs. 26 mins.

The following were given dual instruction by Mr. McDonough:—J. Brinton, H. Beamish, C. Fellowes, H. D. Coleman.

The following "A" pilots made solo flights:—W. Swann, G. V. Perry, E. R. King, E. J. Brighton.

Passengers with Mr. Brighton:—S. H. Smith, W. Nunn, V. M. Parsons, C. H. James.

On Thursday Wing Cdr. Rippon had a flight with Mr. McDonough. Mr. C. Fellowes made his first flight solo on Saturday satisfactorily. He afterwards flew for 15 mins. solo.

Fog has been very prevalent throughout the week. On Sunday visibility was extremely bad at 1,000 feet, but at 2,000 feet the air was exceptionally clear with brilliant sunshine.

Report for week ending Mar. 5.

Total flying time 3 hrs. 10 mins.

Mr. Ellison was given dual instruction by Mr. McDonough. The following made solo flights:—G. V. Perry, A. M. Glover, E. J. Brighton.

Very high winds during the week restricted flying.
The second Midland Aero Club Dance will be held at the Palace Ballroom, Erdington, on Friday, Mar. 25, from 8 p.m. to 12 p.m. Tickets, price 5s. each, may be obtained from the Secretary, 22, Villa Road, Handsworth, or from the Hon. Secretary of the Dance Committee, Mr. S. H. Smith, "Windermere," Orchard Road, Erdington, Birmingham.—V. M. P.

The Hampshire Aero Club.

Report for week ending Mar. 6.

Total flying time 1 hr. 10 mins.

No tuition flying during the week. Mr. Thompson has been through doing his Reserve training and no deputy could be found for him.

Señor de la Cierva flew alone for 70 mins., but high winds stopped other soloists.

Australia.

THE VICTORIA CLUB.

Among the latest recruits to the Victoria Branch of the Australian Aero Club are the two sons of Lord Stonhaven, Governor-General of Australia. The Honourable James Baird, aged 35, and the Honourable Robert Baird, aged 26, are now regularly early morning flyers at Essendon, where they are generally accompanied by Flight Lieutenant Davidson, R.A.E., Air A.D.C. to Lord Stonhaven.

Mr. Cecil McKay, son of the late Mr. H. V. McKay, has been flying solo for some time. And other regular early morning visitors are Capt. Chirnside, Miss Winter-Irving, and Col. and Mrs. T. W. White.

According to a local paper, Major Hereward de Havilland, in co-operation with the firm's Australian representatives, Gilbert Lodge and Company, will shortly open a factory. He has taken with him to Australia as his assistants Messrs. Taylor and Bedford, both of the de Havilland Company. According to the Australian paper they hope in a few years to be able to sell Australian-built Moths at £400.

AIR AFFAIRS IN PARLIAMENT.

RUSSIAN AIRCRAFT FOR CHINA.

In the House of Commons on Feb. 25, CAPT. GARRO-JONES asked the SECRETARY OF STATE FOR FOREIGN AFFAIRS whether any country had exported aeroplanes or aeroplane armaments to the Cantonese Forces. SIR AUSTEN CHAMBERLAIN said, "Oh, yes, Sir. I think Russia undoubtedly has." LT.-CDR. KENWORTHY asked if aeroplanes had actually been sent to France and Italy to the Cantonese forces. SIR AUSTEN CHAMBERLAIN was unable to say whether anything was being supplied. He said that it was difficult to distinguish between civil and military aircraft, and some difference of opinion had arisen between ourselves and other Powers as to what were to be considered military aircraft. He believed that aircraft had been supplied to the Peking Government by some of the Powers concerned (in the China Arms Embargo Agreement of 1919).

CAPT. GARRO-JONES asked whether the French and Italian Governments were asserting their freedom to export aeroplanes to China, including freedom to export aeroplanes to the Cantonese forces. SIR AUSTEN CHAMBERLAIN said that it was not a question of exporting to this force or that, but of exporting to China.

£4,400,000 FOR AIRCRAFT.

In the House of Commons on Feb. 24, in reply to a question by LT.-CDR. BURNLEY, the SECRETARY OF STATE FOR AIR said that the total value of all contracts arranged for, in respect of aeroplanes, sea planes and their parts and accessories, with private firms or Government Constructional Departments in Great Britain between Nov. 1, 1925, and Nov. 1, 1926, was approximately £4,400,000.

R.A.F. ACCIDENTS.

In the House of Commons on Feb. 24, in reply to a question by MAJOR GYNN, the SECRETARY OF STATE FOR AIR said that there were 58 fatal accidents in the R.A.F. between Jan. 31, 1926, and Jan. 31, 1927. Eight of these had affected machines belonging to the Fleet Air Arm and two had affected experimental types of machines. The undepreciated value of the machines involved in these accidents has been £135,000. The value of the parts salvaged could not be estimated without undue labour.

CIVILIAN PILOTS.

In the House of Commons on Feb. 24, in reply to a question by MR. G. HARVEY, the SECRETARY OF STATE FOR AIR said that the present total number of civil aviators holding pilots' certificates was 233; this number being exclusive of serving R.A.F. officers, 63 in number who held civil pilots' licences.

R.A.F. PILOTS.

In the House of Commons on Feb. 24, in reply to a question by LT.-CDR. BURNLEY, the SECRETARY OF STATE FOR AIR said that 41 pilots trained by the Air Ministry had qualified between Nov. 1, 1925, and Nov. 1, 1926.

AIR MAIL SERVICES.

In the House of Commons on Mar. 3, in reply to a question by LT.-CDR. KENWORTHY, the UNDER-SECRETARY OF STATE FOR AIR said that it was not possible at present to state when a civil aeroplane service from Egypt to the Cape would be inaugurated. The R.A.F. were now co-operating in flights between Cairo and Khartoum in connection with the experimental fortnightly service between Khartoum and Kisumu now in progress. As announced at the Imperial Conference, H.M. Government in the Union of South Africa had decided to carry out one or more flights to complete the connection at the southern end.

In reply to a further question by LT.-CDR. KENWORTHY, SIR PHILIP SASSEON said that it was too early for him to give even an approximate date when it was proposed to extend the air mail route from Egypt to India, to Burma and Australia. He understood that the Government of India were taking preparatory steps with a view to giving effect to the recommendation of the Indian Air Board in regard to the systematic survey of the main trunk routes in India.

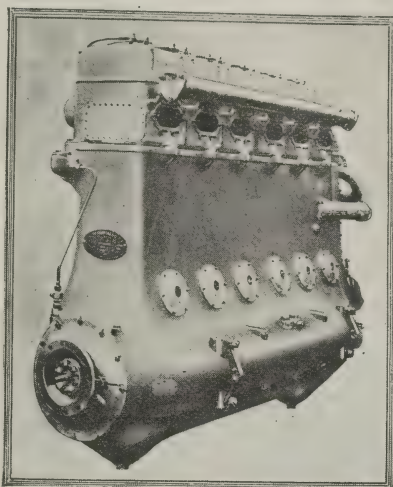
His Majesty's Government in Australia had decided to arrange for flights to be carried out by the Royal Australian Air Force from Australia to Singapore to link up with flights to be undertaken by the Royal Air Force from Singapore towards Australia.

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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 13; Tuesday, 13; Wednesday, 11; Thursday, 11; Friday, 12; Saturday, 15; Sunday, 2.

IMPERIAL AIRWAYS LTD.:

London—Paris: London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam: Machines 28, passengers 149, freight 11 tons.

AIR UNION:

Paris—London: Machines 18, passengers 17, freight 8 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 16, passengers 33, freight 1 ton.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 11, passengers 17

SABENA:

Brussels—London: Machines 2, passengers 10

PRIVATE:

Machines 2, passengers 1.

Total number of trips by British Machines, 30, carrying 150 passengers. Foreign Machines, 47, carrying 77 passengers.

Comparative Figures:

Week ending Mar. 6:

Machines, 77; Passengers, 227; Crews, 123; Total personnel, 350.

Corresponding week, 1926:

Machines, 76; Passengers, 198; Crews, 93; Total personnel, 297.

Corresponding week, 1925:

Machines, 69; Passengers, 137; Crews, 81; Total personnel, 218.

Corresponding week, 1924:

Machines, 88; Passengers, 123; Crews, 140; Total personnel, 263.

Corresponding week, 1923:

Machines, 61; Passengers, 107; Crews, 116; Total personnel, 212.

Corresponding week, 1922:

Machines, 44; Passengers, 110; Crews, 74; Total personnel, 124.

Corresponding week, 1921:

Machines, 31; Passengers, 69; Crews, 35; Total personnel, 104.

Croydon Notes.

The fifth and last of the De Havilland Herculeses was delivered to Imperial Airways Ltd. on Monday of this week. Mr. Hubert Broad flew it to Croydon from Stag Lane. On Thursday morning Mr. F. L. Barnard will fly it to Cairo, where it is due on Monday next.

Thus the De Havilland Company have finished off a job of work to schedule, which at least one aircraft constructor stated was impossible.

The order for the machines was placed in November, 1925. The D.H. Company had never before built anything but single-engined machines though the design staff, who were previously of the Aircro, had produced the D.H.3, 10 and 11, which were twin-engined bombers.

The original Hercules was first flown in October and scarcely required any modification. So far four of them have arrived safely in Egypt. The Cairo—Basra section of the route is already in operation. The Basra—Karachi section will be opened on Apr. 6.

On Thursday, Mr. R. H. MacIntosh had to go to Berlin on a D.H.50 accompanied by Mr. Wheeler, as engineer, to bring back some important documents. He had the wind behind him and reached Amsterdam in 1 hr. 33 mins. Here he ran into very bad weather and had to fly very low and go about 30 or 40 miles out of his way to avoid storms. Nevertheless, he reached Berlin 4 hrs. 35 mins. after leaving Croydon.

At Berlin it was found that his visa had expired, but as he wanted to get back as far as Hannover before dark he was told to get it renewed there. He reached Hannover the same night.

From Hannover the weather was appalling and he had to fly the whole way to St. Ingvert at 100 ft. He arrived there after 5½ hrs. flying and refuelled. Still in appalling weather he flew to Croydon in 1½ hrs.

This is quite one of the best of Mr. MacIntosh's many fine performances and if only he had had a desire for publicity he would to-day be one of our most famous aviators.

A.D.C. Aircraft Ltd. have been busy lately. On Tuesday of last week Mr. Perry and Mr. Hope tested the latter's secret two-seater Puma-Martinsyde, christened Gugnunc I. Possibly the name is an indication of the paper with which Mr. Hope has made press arrangements and possibly it indicates nothing of the sort.

On Wednesday and Thursday Mr. Perry was testing two Finished Martinsydes for a foreign Power.

On Friday Mr. V. N. Dickinson flew Gugnunc I to Stag Lane for Mr. Hope and Mr. Perry tested a Nimbus D.H.9.—G. D.

The Cairo—Uganda Air Mail.

The Postmaster-General announces that beginning on Mar. 10, and fortnightly thereafter until further notice, a letter Air Mail will be despatched from London for transmission by the experimental air service from Cairo to Uganda (Jinja) and Western Kenya (Kisumu). All classes of correspondence (but not parcels) may be sent, but at sender's risk only, as regularity of flight cannot be guaranteed. Correspondence cannot be registered or insured.

Assuming regular flight, the Air Mail will be due to reach Jinja and Kisumu on about the 12th day after despatch, and will thus offer a substantial saving in time of transmission compared with the use of the ordinary route all the way.

Any letter intended for transmission by the Air Mail must bear in the top left-hand corner of the cover the official blue Air Mail label,

or be plainly marked in manuscript "By Air Mail," and must be prepaid with a special fee, in addition to ordinary postage, of 6 per oz. Subject to observance of these conditions, it may be posted in any of the ordinary ways of posting. The latest time of posting will be, generally, the same as for the ordinary Thursday despatch Mails for Egypt, India, etc.

Napier Profits.

D. Napier and Sons Ltd., manufacturers of the famous Napier Lion engines, deserve hearty congratulations on the result of their year's trading terminating on Sept. 30, 1925, as set forth in the balance sheet which was issued on Mar. 1. The balance sheet shows a net profit after providing depreciation, interest, taxation, Directors' and Trustees' fees, Managers' commissions and contingency, of £201,793 17s. 6d.

This, on an issued capital of £846,000, plus £40,350 worth of debenture stock, is a very nice profit indeed considering that for practical purposes it has all been made out of aeroplane engines. It does indeed look like backing up the R.A.F. with a soundly established Aircraft Industry.

A dividend of 7½% was paid on the Preference Shares on June 30 last and an interim dividend of 5% on the Ordinary Shares on Sept. 17, 1926. The Directors now recommend a final dividend of 10% to be paid on the Ordinary Shares making in all 15% (less Income Tax) for the year.

These payments leave the sum of £170,265 13s. 8d. The Directors propose to dispose of this by adding to it £50,000 from the Reserve, thus bringing the amount up to £220,265 13s. 8d., carrying forward £38,265 13s. 8d. and dividing up the remaining £182,000 as Bonus Shares among the existing shareholders.

These Bonus Shares are to be 8% Non-Cumulative Preference Shares ranking behind the existing 7½% Cumulative Preference Shares but in front of the Ordinary Shares. This will necessitate increasing the capital of the Company and altering the Articles of Association so as to authorise capitalisation of profits. When this is done it is proposed to make the authorised issue of these 8% Non-Cumulative Preference Shares £300,000, though there is no present intention of issuing the balance of such shares beyond the £182,000 now under consideration.

The directors of the firm now are Mr. Montague Napier (Chairman and Joint Managing Director), Mr. H. T. Van C.B.E. (Joint Managing Director), Mr. Henry Cooke, M.A. R. Robins, Mr. George Pate, B.Sc., M.I.A.E. (Technical Director), Sir Harry Brittain, K.B.E., C.M.G., M.P. (who might be called the firm's ambassador, in view of his gliding proclivities), and Mr. Frederick A. Davies (who is also the Secretary of the firm).

All of them deserve to be congratulated on proving that the Aircraft Industry does provide a goodly fortune for a firm which is efficiently managed technically and commercially. The Napier Lion engine has upheld the highest reputation of British engineering wherever aircraft are flown. At the Napier firm has, besides its own handsome profits, earned the Nation's gratitude.

Tecalemit in the East.

Tecalemit High Pressure Lubrication was used with conspicuous success on the air liner *City of Delhi* which conveyed the Secretary of State for Air, Sir Samuel Hoare, and his party, to India and back.

The engineer-in-charge, Mr. T. Mayer, of the Bristol Company, reports that with the Tecalemit gun fresh charges of oil were injected through the working parts, removing all trace of sand or dust. At the finish of the flight, and after some days in dust storms, all parts were in perfect condition.

PERSONAL NOTICES.

MARRIAGE.

COOKE—STANLEY TURNER.—On Mar. 1, at St. Michael's, Heligoland, by the Rev. E. E. Yelverton, O.B.E., D.D., Chaplain to the Forces, Capt. Robert Chevallier Cooke, M.C., Norfolk Regt. (second Sudan Defence Force), and younger son of Fred. Wm. Cooke, Swarston, Norfolk, to Sheila, elder daughter of Wing Cdr. H. Stanley Turner, R.A.F., P.M.O., R.A.F., Middle East.

FORTHCOMING MARRIAGE.

MAITLAND—KITTELEWELL.—The engagement is announced between Flt. Lt. Percy Eric Maitland, A.F.C., R.A.F., eldest son of Surgeon-Capt. P. E. Maitland, R.N. (retired), of Victoria Park Road, Exeter, and Alison Mary, eldest daughter of Lieut.-Col. H. Kettlewell, late King's Shropshire Light Infantry, of Dibden House, Hythe, Hampshire.

BIRTH.

BLANFORD.—On Mar. 2, at Newchwang, Manchuria, to Maude, wife of J. S. Blanford, D.F.C. (Asiatic Petroleum Company)—a daughter.

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Vol. XXXII. No. 11.

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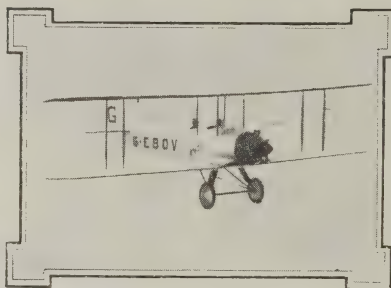
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ON THE DEBATE ON THE AIR ESTIMATES.

There is a story that on one occasion when Oscar Wilde and Whistler were bandying words, at a gathering of their contemporary Bright Young Things, Whistler got off some particularly brilliant remark, whereupon Wilde magnanimously said "I wish I had said that, Whistler." To which Whistler retorted "You will, Oscar, you will." It is to avoid any such innuendo that one opens these remarks by noting with full acknowledgement and with deep respect the first sentence from the article on the Air Estimates in *The Times* of Mar. 11. The sentence reads thus:—

Sir Samuel Hoare has all the scrupulous precision which he was able to ascribe to-day to British aeroplane engines, and, like them in their great Imperial flight last year, he went through the long journey of his Estimates "purring like a kitten."

The two outstanding features of the Debate on Mar. 11 seem to have been the justifiable self-satisfaction, purely in his official capacity, of course, of Sir Samuel Hoare's speech, and the convincing honesty of Mr. Baldwin's statement on Air Force accidents.

Mr. Baldwin's English was as beautiful and his logic as unassailable as is customary in all his public utterances. The only pity is that he should have taken so much trouble personally to investigate this question of R.A.F. accidents and should then have based his arguments and assumptions on entirely false premisses owing to lack of essential information.

That Mr. Baldwin evidently did not learn in the course of his investigations was that a very large proportion of R.A.F. accidents would be prevented if the technical experts of the Air Ministry could be forced to work with greater speed and with greater intelligence, and to equip the Air Force with apparatus which would prevent a large proportion of such accidents.

There is no possibility, in the space available in *THE AEROPLANE*, of giving the numerous speeches in this Debate at all. The utmost one can do is to give the essential points of each speech, to quote an occasional outstanding phrase, and to make comments where necessary (in brackets).

THE OPENING SPEECH.

SIR SAMUEL HOARE, opening the Debate, said that there were three significant features of the present Estimates. First, the strength of the Air Force was being increased nearly 10 per cent. with a reduction of 3 per cent. in the cost. Secondly, old machines were being replaced by new types. Thirdly, there was a reduction of nearly

£750,000 in the cost of defending the Middle East. But he warned the House that the defence programme would involve increased expenditure in future years. All Home Defence squadrons were already equipped with new types, and he hoped that by the end of the year two-thirds of the whole Force would be similarly armed, and no more old types of engines or machines would be issued.

[This is of course true in that the squadrons have been equipped with types which are new to them. But as a matter of fact the designs are several years old and the equipment of the Air Force cannot be considered satisfactory till all its machines are as good as good aeroplanes can be, not only in construction but in performance. And we are far behind America and France in the performance of the very types which would be most important in war.]

As to the Middle East, Sir Samuel pointed out that in 1921, when control of 'Iraq was transferred to the Air Force, the Imperial forces consisted of 33 infantry battalions, 6 cavalry regiments, 16 batteries, various Army units, and 5 squadrons of the R.A.F. In 1927, besides the 'Iraq Army and local levies, there were only 5 squadrons of the R.A.F. and 2 Indian battalions.

On the doctrine of an Imperial Air Policy Sir Samuel stated that South Africa and Canada had both agreed to include in their Estimates this year substantial sums for mooring-masts for airships. The principle of co-operation had been so fully accepted at the Imperial Conference that some time during the next two years an Air Conference would be held at Ottawa at which the Governments of the Empire would be represented.

Future projects included the interchange of flying personnel between the Air Forces of the Empire, and airships and aeroplanes to fly from Empire capital to Empire capital without stopping in foreign territory. He emphasised the fact that Air Power is a concentrated force rather than a collection of isolated fragments. In this air policy greatly resembled sea policy and so air strategy should be directed towards organising Imperial air routes. Such a policy would be an economy rather than an additional expense.

On this subject Sir Samuel referred to the provision in these Estimates for landing grounds on the route to Singapore and for maintaining a flight of flying-boats in Far Eastern waters, one of whose duties it would be to co-operate with the Royal Australian Air Force.

[These regular readers of *THE AEROPLANE* who recall a series of articles in this paper some years ago on the subject of "Singapore and The Oil Supply" will recognise the underlying cause of this new development in the Far East.]

THE FLIGHT TO INDIA.

Referring to his own flight to India Sir Samuel said that he had three definite objects in view: Firstly, to open the section of a line which would in time be of great importance to Imperial communications. Secondly to discuss with the Government of India proposals for strengthening the Air Force and starting flying lines in India

HOW THE MONEY GOES.

By courtesy of "The Daily Express" one is allowed to reproduce one of that paper's brilliant cartoons which is singularly apposite and perhaps a better allegory than the artist, Mr. Strube, intended. The Fleet Air Arm, cramped like a parrot in a cage, while Mr. Bridgeman, the First Lord of the Admiralty, pays out an absurdly small contribution (in the form of a reduction in the Navy Estimates) to Mr. Churchill's enormous Budget, recalls the fact that the Navy's vote for the Fleet Air Arm is some £200,000 less this year than it was two years ago, so that the expansion in that branch has to come out of the money which should be spent on the regular Air Force.



THE CADGER'S PIPE.

THE NAVY ESTIMATES SHOW A SMALL REDUCTION OF £100,000.

And thirdly to prove to the World and the British Public the reliability of the newer types of civil machines.

He said that since his flight the section between Baghdad and Basra was already working with passengers and freight, that the business men of Karachi were using it for express communications, and that on more than one occasion there had been "straphangers in the machine between Baghdad and Basra."

As to the Government of India, Sir Samuel said that the discussions had been extremely valuable. The Government and the Assembly had already agreed on a programme of Civil Aviation which would be of great value to India and to the whole system of Empire air communications between Great Britain and the Far East.

Sir Samuel was quite amusing on his personal experiences. He related how when they were flying over the Mediterranean and passed over certain British destroyers which were patrolling their route, the aeroplane wireless their thanks to the ships, and got the answer "You may think it bumpy up there, it is nothing to what it is down here."

He said that they flew for hours over country where landing would have been impossible with complete confidence in their engines [Bristol Jupiters] "which never stopped purring like kittens." [It strikes one that the voice of the Jupiter, pleasing though it may be, indicates rather an out size in kittens.]

He said that on the last day of their journey they flew the whole way from Palestine to Egypt without a glimmer of light from the moon or the stars. This safety and regular arrival up to time impressed the people of the countries through which they passed and made them realise that a new method of communication of the greatest value to the Empire was being developed.

[Here one would remark that in spite of one's faith in the engines and the aircraft, one still holds that Sir Samuel and Lady Mand Hoare were taking an unjustifiable risk in making that flight. If they had had a serious crash the ill effect would have been far greater than the good effect produced by their success. No human product is absolutely reliable. And the only safe way to run an air route is to run it on the American air-mail principle of having a ground on which a safe landing is possible within reach at any moment of the flight.]

People who claim that the future of air communication lies in the absolute reliability of the machinery quite forgot that even the British railways, which are demonstrably the safest means of conveyance in the World, have "emergency landing grounds" on every hill, in the shape of automatic cut-outs in the rails so that if trucks or coaches break away from a train and run backwards they are thrown off the line into the adjoining scenery and so cannot collide with trains following in the same direction.]

Sir Samuel referred sympathetically to the meeting of the big three-engined Hercules with "Two young sportsmen from the Manchester Aeroplane Club, Messrs. Stack and Leete" with their Moths at Bushire on the Persian Gulf, and how they had told him that their luggage on their ten thousand mile flight consisted of an attaché case each and a ukelele between them, and he asked whether there could be a better example of the mobility of the modern British aeroplane.

[Incidentally, a good many papers in mentioning this incident have referred to those aviators errant as "Manchester sportsmen." As a matter of fact, Mr. Stack is a Norman-Irishman from County Clare, of an eminently rebellious stock, and one believes that Mr. Leete is a South-Countryman. Mr. Stack's connection with Manchester consists solely in the fact that for a few months he was chief instructor to the Lancashire Aero Club.]

On the subject of British pilots Sir Samuel said that he was convinced that they were the best in the World. As a result of their abilities the Air Force was now taking most effectively an integral share in the defence of India on the North-West Frontier. Last year when they were called upon to undertake a military operation on their own account they did it so quickly and so completely that it was seriously suggested that it was not a campaign and that they ought not to have medals because there were practically no casualties on either side.

One of the officers concerned when asked how they did the work so quickly said to Sir Samuel "We first drove them into their caves

and the fleas were so bad in the caves that the fleas almost immediately made them surrender."

[Personally one doubts the accuracy of this statement. One cannot believe that fleas affect Pathans any more than they do Irishmen. One soon gets used to them. Among the lower classes in Ireland they are regarded as integral members of the household.]

MATERIAL IMPROVEMENTS.

Referring to material Sir Samuel Hoare said that if asked whether he was completely satisfied his answer would always be No! There could be no finality where changes and new discoveries were constantly being made. All he could do was say that there was definite and substantial progress.

The two airships that were being built were far in advance of anything built during the War or since. Stainless steel was being used [this is news] and heavy oil engines and new methods of construction.

As to aeroplanes, in 1919 the best took six passengers at 90 miles an hour whereas the new types took 20 passengers at 110 miles an hour. [Yes! But the former had 375 h.p. whereas the latter have 1,350 h.p. So the improvement is not so remarkable.]

Further he said that a few years ago military machines took as long to climb to 5,000 feet as the newest type take to climb to 20,000 feet. [During the War we had single-seaters which could do between 120 and 140 m.p.h. with about 300 h.p., and we are only getting about 150 m.p.h. for 450 h.p. in these days.]

Sir Samuel did however make the good point that whereas in 1923 engines had to be overhauled after 75 hours' running they now stood up to 250 hours' running before needing overhaul.

He emphasised the need for adequate weather reports and said that Wing-Commander Pulford had told him that on one occasion when he telegraphed to a station in Central Africa to inquire about the weather in the country where he proposed to land he received the not very helpful answer, "The roads are very muddy."

And in the same way when he himself was at Delhi when they were debating whether to start in a thick fog they received a message from a railway station down the line, "Everything is up to time. The express just went through 2½ hours late." [Evidently Indian railways are not unlike French railways.]

Sir Samuel added that the Governments of the Empire realised the importance of improving the system of weather reports and that the Meteorological Office in London was co-operating with meteorological offices overseas.

In conclusion Sir Samuel said that while on the one hand the Air Force must be made as mobile as possible, on the other Civil Aviation must direct its aim not onto the enclosed spaces and the storms and fogs of Europe so much as to the boundless expanses and wide horizons of the British Empire. By this means he saw the prospect of using air force as an instrument of economy and not as a stimulus to greater expenditure. He saw the prospect of making aviation an asset and not a liability to the British Empire.

THE MEMBER FOR UTOPIA.

MR. LEES SMITH (Keighley, Labour) said that the Air Ministry was an adventurous, aggressive and confident department, but certainly not an economical one. No public department for a generation had been criticised by the Public Accounts Committee as had the Air Ministry. Expenditure on the Air Force had not produced economy in the expenditure on the Army.

He said that the French programme of Air Force expansion had been de-celerated and that the French Air Force was disintegrating and falling to pieces. When our programme was completed we should have the first Air Force in the World—(Cheers)—and then the French would be stimulated into resuming their programme and the whole process would begin afresh.

He said that in a few weeks the Preparatory Commission for the Disarmament Conference would begin work. He wished the British Government to go to that Conference with dramatic proposals to capture the imagination of the World, to abolish fighting aeroplanes and to accept limitations and reductions. He advocated transferring the Air Services into an International Air Service under the League of Nations. [Mr. Lees Smith means well.]

A FRIENDLY OPONENT.

CAPTAIN GUEST (Bristol, Liberal), Secretary of State for Air in 1921-22,



THE RHODESIAN AIR SURVEY.—The Headquarters of the Aircraft Operating Company's expedition to survey the property of the Rhodesian Congo Border Concessions Ltd. This is at N'Changa, about six miles south of T'Shinsenda station and twenty miles west of N'Dola (on the Cape to Cairo air route). On the right are the huts of the men of the expedition, and on the left is the N'Changa hotel, where they feed.

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after congratulating Sir Samuel on his air journey as one of the finest performance of many a year, said that the country must be trained to understand that flying was a dangerous game, it was no use pretending it was not. But the country must be convinced that proper safeguards against accidents were being used.

He spoke strongly in support of the Auxiliary Air Force which he said should receive the support even of the Socialist Party. He said that Civil Aviation depended on abolishing fear of flying, and that it was impossible to spend too much money on the improvement of Civil Aviation for every man and woman who went up as a passenger was a propagandist.

He congratulated the Air Ministry on having the inspiration and example of Sir Hugh Trenchard, to whose great services testimony was borne by the fact that he had been Chief of the Air Staff for nine years under five different political Air Ministers.

THE VOICE OF EXPERIENCE.

LIEUT.-COL. MOORE-BRABAZON (Chatham, Unionist) said that if Sir Samuel Hoare and his wife had been cinema artists like Douglas Fairbanks and Mary Pickford they would have got £10,000 for making that trip. As it was, all they got was an attempt to reduce the Right Honourable Gentleman's salary by £100.

He hoped they realised that the airship was the only gentlemanly way of travelling. The sooner we realised that, the sooner we should get down to real travelling between one part of the Empire and another.

Referring to Sir Samuel Hoare's triumphant announcement that we are no longer going to use machines of war time design, he said that it was a cynical reflection on peace-time progress that the War having been over for nine years we were to-day making this enormous decision to use war-time machines, when it was remembered that during the War we changed from one design to another after about three or four months.

He asked whether our scouts were faster than American scouts and whether our reconnaissance machines were as good as the best French machines. He threw at the Air Ministry Technical Department the gibe that the Italians did in six months, for their Schneider Trophy machines, what our technical experts had said might be done in two years.

Referring to research work, he said that he objected to the sticky hand of the Government on free experiment by private firms. A proper programme of steady aeroplane construction, similar to that for ships in the Navy, would be welcomed by the Aircraft Industry.

As to accidents in the R.A.F., he said that about 70 per cent. were due to stalling, and he hoped that in spite of attacks on the "Royal Ground Force" the Ministry would not be frightened into diminishing the number of men on the ground as they were necessary to the safety of those in the air.

He said that it was wholesome that our military and civil machines should develop along entirely different lines. Civil and military flying were not in any way comparable.

He was interested in the number of accidents for the miles flown, not in the number of deaths, because, whether sixteen people were killed or one person, an accident was an accident and they would get quite a misleading idea of the problem unless they reckoned it on miles flown per accident.

He said that accidents did not discourage pilots at all, but sometimes friends and relatives of those who flew did fear that everything was not being done that could be done to prevent accidents. And he asked the Prime Minister to say what he had found out in his personal investigations.

WHAT AMERICA TEACHES.

LIEUT.-COMMANDER KENWORTHY (Hull, Labour) expressed his agreement with Col. Brabazon, and complained that while we were spending £115,000,000 on defence the Air Ministry only got £15,500,000 out of it. He said that we were spending far too much on the Navy, and for that matter on the Army, and too little on the Air Force.

He wished that Sir Samuel Hoare had extended his flight to Australia (Sir Samuel Hoare interjected "Next time.")

Referring to our air mail work he said that in the States they were running air mails day and night between New York and San Francisco, and New York and Chicago, and that in New York one saw more mail vans marked "Air Mail" than ordinary mail vans. The service was paying for itself.

All-Red air routes were quite sound for war purposes, but they were impossible for air mail routes. For that purpose we ought to use lines already organised in other countries.

THE PRIME MINISTER ON ACCIDENTS.

THE PRIME MINISTER, MR. BALDWIN, said that he had devoted several days during the Christmas holidays to investigating accidents. He had studied the results of Courts of Inquiry, accident reports, copies

of technical discussions, criticisms of all kinds, statistics, comparisons of machines and places, and analyses of all causes, even by engine failure when there was no accident, and the flying history of pilots. He had had personal discussions with R.A.F. officers of all ranks, confidentially and privately. He paid a surprise visit to an aerodrome to examine himself the daily routine of the work.

The first thing that struck him was the complexity of the work done by the R.A.F. and the difficulties inherent in the daily routine. Also he was struck by the ground organisation required.

People should realise that the aeroplane itself weighed anything from the weight of a light motor-car to the weight of a loaded motor omnibus and that it landed at the speed of an express train. He was struck by the skill of the pilots when he saw the innumerable controls with which they had to be so familiar that they could do every case work the right one automatically and at the instant.

Economy, and the constant drain of personnel from home stations to garrisons overseas, made the task of responsible commanders in the Air Force extremely difficult.

He assured the House that there was no particular station nor unit nor type of machine which stood out over a term of years as either superior or inferior to another.

The proportion of accidents due to remediable causes was a very small percentage of the whole. Very few could be traced to the human element on the ground, and very very few to faulty design even when statistics were brought in from the experimental stations.

It was true that research was improving design and devices that made for safety but machines were becoming more powerful and faster so that as risk of accident lessened in one direction it increased in another. It was not a fact that the older designs were more prone to disaster, he had found no proof of that. [For the good reason that our newest designs have just the same aerodynamic defects as the old, along with a higher performance, and need life-saving devices just as badly.]

He had come to the conclusion that the main cause of accidents was traceable to the personal equation. The type that made the flying pilot was the adventurous type, the quick-brained man, the man with great reserve of high nerve power. A young man of that temperament became elated. Pulling them up every time they did anything risky would only make them less fit for the work for which they had been trained. [So the remedy is to give them machines so equipped or so designed that they are fool-proof.]

The man who had got to fight had to be trained to get off any ground, to come down on any ground, and to be always flying over fresh country. Stunts were not done because they were stunts, they were done because very often they were the only way of escape from hostile aircraft and the only way to dominate the enemy. In training of such a character risks were unavoidable.

[All that is quite true so far as it goes. But Mr. Baldwin has only been partly informed. In the first place, but for the obstinacy and inefficiency of our Technical Departments, we should long ago have had mechanisms in use, such as the Handley Page Slots and the Savage-Bramson Anti-Stall Gear, which would make getting off any ground and coming down on any ground at any rate safe against fatal accidents. Secondly, the idea that the harum-scarum type of pilot is the best war pilot is entirely fallacious. Very often the most reckless flyer at home has the worst cold feet at the Front. And the best fighting pilot is generally the calm cool phlegmatic machine-like man-killer of the type of the late James McCudden.]

On the subject of the ground staff of the Air Force, Mr. Baldwin said that he thought that it had been cut down too far. But, he added, this had not affected accidents, for if the ground staff was below its proper numbers it meant that the amount of flying was curtailed. It did not mean that any machine went up before it had passed all the necessary tests. The amount of flying was increasing and made a greater demand on the ground men and on the officers on whom the supervision of the work rested. He believed that arrangements were being made for allotting extra men to the flying units.

He said that critics did not realise the number of men that ought to be on the ground in the Air Force. If anybody had any doubts about it they should go down to an aerodrome and see the work that has to be done to keep a machine fit to fly.

Referring to the reports made by the Inspector of Accidents he said that publication of such reports would restrict the freedom of criticism of that official, and that witnesses would not speak with the same freedom if they thought that their evidence was going to be made public. The great majority of accidents happened from error of judgment, generally on the part of young pilots who had not acquired that judgment which comes with time, and with time alone. Statistics were misleading, as anyone would agree who had



THE RHODESIAN AIR SURVEY.—On the left, the aerodrome at N'Changa, in process of clearing. On the right, a large cleared area. The Rhodesian Congo Border Concessions Ltd. are clearing aerodromes for the Aircraft Operating Co. Ltd. through bush of this kind at intervals of 20 miles over an area of some 20,000 square miles.

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taken part in the Free Trade and Protection Controversy. Anything could be made out of statistics.

The Secretary of State, and the Air Ministry under him, were the natural buffers between the Service and the rest of the World. They protected the individual commanders, they had to defend the Force, and they had to answer criticisms. An officer publicly criticised had no means of reply. And it would be intolerable that individual officers or men or stations should be subject to criticism and attack, and that would undoubtedly be the case if the public had full access to all the statistics and reports which were issued.

There was no middle course between full publication of everything and the present system. He asked the House and the people of this country not to hamper the men who were doing the work, and he urged the Press not to encourage the type of criticism which could only make them introspective and nervy, for that would only help to turn the edge of that fine temper and depress the most magnificent moral we have in this country.

THE WAY THEY HAVE IN THE NAVY.

REAR-ADMIRAL SUETER (Hertford, Conservative) pointed out that there was to be an overhead cut of £300,000 on Vote 3. £500,000 extra was to be spent this year on engines, but he was told that expenditure on aircraft would be less than last year. He wanted to know whether this was true.

He congratulated the Lady Maud Hoare on her flight, which he said would give confidence to the many women throughout the Empire who would have to travel by air.

He suggested a subsidy for the Khartum—Kisumu air route [which *Hansard* calls Khartoum to Kismayo].

He asked the Air Ministry whether there were more accidents in proportion among airmen pilots than among officers and whether he was quite satisfied with the inspection of machines. He thought every squadron ought to have an aeronautical engineer inspector.

Admiral Sueter said that an inspector from the Air Ministry explained the breakage of the wings of a certain aeroplane in the air by the fact that it was an experimental machine and then he added the astonishing statement:—"You should not lose life through an aeroplane breaking its wings in the air because it is an experimental machine. I have had dozens and dozens of experimental machines and I have never had such an accident. What is wanted is closer and better inspection of aeronautical machines."

[As a matter of fact, very large numbers of machines which were produced by the Air Department of the Admiralty under Admiral Sueter's supervision during the War did in fact pull their wings off in the air. It was not the experimental machines which broke but the mass-production machines. Surely it is better that the breaking should be done in the experimental machines so that the production machines may be the stronger. If no experimental machines broke while Admiral Sueter's Department was in operation, it merely means that the test pilots never put the full strain of war-flying on the machines.]

Further Admiral Sueter said that in Germany they had flown 4,000,000 miles last year and only had one accident. And in return to Sir Samuel Hoare's interjection that that was in civil flying [in air-line flying we have had no fatal accident at all for two years] he advocated an Accident Research Commission to go and study the question all over the World.

[Here Admiral Sueter was absolutely begging the question. He should have compared our R.A.F. accidents with the French Flying Service accidents, if he could get at the figures. And then he would have found out that we have a much smaller proportion of accidents than they do. Nobody with the slightest knowledge of modern aircraft would pretend for a moment that machines built in any other country compare at all with English machines for strength or general airworthiness.]

IN SUPPORT OF THE AIRCRAFT INDUSTRY.

LIEUT.-COLONEL SIR ALAN BURGON (Aylesbury, Conservative) having remarked on the commendable absence of public spirit in the Debate and on the fact that the Air Ministry existed almost as much for civil work as for defensive purposes, advocated that full support be given to the Aircraft Industry. He said there was a vast difference between endeavouring to boost an industry and demanding that the pioneers of this job, on which the efficiency of our Air Service was entirely dependent, should be supported against going under and leaving us without the reserves necessary in a national crisis.

He advocated three methods of supporting the Trade, firstly by showing the Flag as an advertisement to get orders from overseas, secondly by getting foreign countries to call upon us for flying commissions to train their personnel, and thirdly by encouraging foreign commissions to come to us to be trained. [These propositions are quite sound. However, judging by the class of automobile in which the Aircraft Industry arrives at banquets and other assemblies no firm seems to be on the verge of dissolution.]

INFORMED CRITICISM.

CAPTAIN GARRO-JONES (Hackney, Liberal) said that either we must advocate disarmament among the nations while aircraft were in a state of development or else we must build until we could defend our cities and our people. He dug up from somewhere the old story of the unmanned aeroplane, or aerial torpedo, and from somewhere else he discovered figures which show that Italy has 600 first-line machines and 930 pilots, France has 1,280 machines and 3,000 pilots and Britain has 750 machines and 2,000 pilots.

[If these figures be anything like true then we certainly have the strongest Air Force in the World on a two-power standard. Any R.A.F. pilot would be happy to make war against such trifling odds.]

Referring to accidents in the Air Force, and without making any charge of excessive drinking, he said that there ought to be an invariable rule that no pilot should be allowed to consume alcoholic liquor at all before he flew on any day.

[With this suggestion one is entirely in agreement. It would be no hardship on the men who do not drink and it would be an absolute bar to the man who has got to the stage when a man must have a drink before he flies, which is the beginning of all alcoholic troubles. It could not very well be made an Air Force order, but it should be made a personal order by every Squadron Leader.]

On Civil Aviation he lamented that the £1 shares of Imperial Airways Ltd. now stood at 1s., with a 5s. call perding over the heads

of the unfortunate shareholders, and remarked that there was hardly a corner of the World where British Aviation could hold its head up.

[These statements may be regarded as true, barring the fact that Great Britain happens to be the only country which is compelled by Nature to run all its air lines outside its home territory, and does so to the extent of nearly a million miles per annum. There is also the slight fact that British aviators, including Canadians and Australians among them, happen to have done more air survey work than those of all other countries put together, except the Americans, and that if one takes in joy-ride flying we probably take about ten times as many of our own population into the air during the year as do the aviators of any other country.]

PACIFISTS MILITANT.

MISS LAWRENCE (East Ham, Labour) moved an amendment urging that air disarmament be laid before the League of Nations. In support of her arguments she quoted at some length, and on several occasions, Brigadier-General Groves [for a while Director of Air Operations] of the Royal Air Force, and more lately a kind of perennial Pickwickian Fat Boy endeavouring to make our feshes creep with the horrors of air war, such as the wiping out of Paris or London by hordes of aircraft squirting liquid gas.]

She referred to the influence of German science on Russian aviation and remarked that anybody who had been in a Russian aerodrome knew that they are in Germany when they got there. She advocated strongly that all the civil flying of the World should be given over to an international commission and that all direct subsidies of Parliaments to civil flying in their countries should end.

Finally she quoted Sir Hugh Trenchard's famous remark at Cambridge about doubting whether all the good aviation would do to civil life could balance the harm that might be done in war by it.

[Miss Lawrence speaks in admirable English and her reasoning is thoroughly sound, but all her arguments are based on the false premise that war can be abolished by mutual agreement between nations, disregarding the fact that it is not Governments which make war, but the psychological momentum of the people themselves.]

MR. RENNIE SMITH, (Penistone, Labour), in something over twelve columns of *Hansard*, seconded the amendment and lamented, also in very much better English than that of the majority of the Government's supporters, the fact that we did not wash out our Air Force and put our trust in Geneva. [One notes in *Hansard* that after four columns of it he commented on the emptiness of the House. One is not surprised, for in these days Members of Parliament are much more concerned with the matter than with the manner of a speech.]

A TRADE ADVOCATE.

SIR HARRY BRITAIN (Acton, Unionist) and a Director of Napier's, made the speech of a first-class business man. He advocated spreading orders for aircraft and engines over a reasonable period instead of rushing orders as at present. He pointed out that by doing so the Air Ministry could buy at a much lower price.

He pointed out the benefits of an air line linking up Trinidad, the West Indian Islands and the Bahamas with the United States.

He expressed his appreciation of the possibilities of the work of the University Air Squadrons at Oxford and Cambridge and paid a tribute to the keenness and energy of the senior Member for Cambridge University, Sir Geoffrey Butler, who had devoted himself heart and soul to the development of the school. And he advocated the equipment of these schools with modern apparatus by the Air Ministry.

A CRITIC OF FINANCE.

MR. W. BAKER (Bristol, Labour) dwelt on a number of what he evidently considered to be lamentable facts concerning Air Ministry habits, such as giving orders to firms who were specialists in a certain line of business instead of throwing contracts open to tender and accepting the lowest bids of people who may know nothing about the job. He also expressed the habit in Iraq of allowing native tribesmen to occupy official land [which otherwise would not be used at all] and then appropriating the rent to what he called "regimental funds."

Also he declared that surplus stores were sold by private treaty instead of public tender, and expressed a suspicion of bribery.

Then he went on to the sale of ferro-silicon to what he called the Disposal Board [by which he probably meant the old Aircraft Disposal Co. Ltd., seeing that the Disposal Board were the people who sold to the A.D.C.] at £4 a ton, and the buying back of it seven years afterwards at £22 a ton [a transaction which seems entirely reasonable seeing that the material was useless when sold and now happens to be wanted again].

Afterwards he dealt with the undesirability of members of the Air Ministry staff holding directorships in any public company [with evident reference to Majors Innes and McMahon].

After which he made the curious allegation that "The Chief of the Civil Aviation Branch" was Managing Director of a petroleum company.

[One gathers from the context of his speech that the firm is the Trinidad Friendship Oil Company, the name of which is in process of being changed.]

Finally he said that the rule was that Ministers should not be permitted to be directors of public companies and that it was much more important that the same rule should apply to their advisers.

SOME GOOD POINTS.

CAPTAIN WELLS (Hornsey, Conservative) said that he awaited with interest a statement from the Secretary of State on this subject. He congratulated Sir Samuel Hoare on the success of the air control in the Middle East and paid his humble tribute to Mr. Winston Churchill as the originator of the air command in Iraq. He said that Mr. Churchill had had to put up with a good many hard knocks in his time, and judging by the agitation of the bookmakers in his own constituency he had got to put up with quite a good few more. It was therefore all the more fitting that he should have credit for the remarkable success of the air command.

As the result of his experience in the Middle East he suggested that the term of service in the Middle East should be made shorter than it was now, so that all our Flying Officers could do a short period of duty under active service conditions there. He pointed out that owing to the air command in the Middle East the British Taxpayer



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had in four-and-a-half years been saved considerably more than the sum now asked for the whole of the Air Estimates.

MR. DALTON (Peckham, Labour), speaking in favour of disarmament, said that the Labour Party were not in favour of one-sided disarmament by this country. All they wanted was that we should take the lead in proposing disarmament to the League of Nations.

THE OFFICIAL REPLY.

SIR PHILIP SASSOON (Under-Secretary of State for Air), replying on behalf of the Government, said that nobody would treat lightly the appeal for disarmament, but that it was not humanly possible to wipe out the achievements of the past twenty-five years and abolish the art and science of flying and he did not think anybody would seriously wish to do so, for the conquest of the air had placed in the hands of man great opportunities for good.

Referring to the increase in Civil Aviation he said that Imperial Airways this year had carried 20,000 passengers and 498 tons of goods as compared with 14,000 passengers and 451 tons of goods in 1925; the passenger mileage showed an increase of 41 per cent., and the goods ton mileage an increase of 7 per cent., although the machine mileage was less.

The amount of joy-riding was greater than in any previous year, the total mileage reaching 275,000, and 82,000 passengers having been carried.

He referred to the possibilities of air survey and remarked that the Aircraft Operating Company had just despatched an expedition to Northern Rhodesia to do a survey of 20,000 square miles, and he also referred to exploratory flights done by the Queensland and Northern Territory Aerial Services.

He said that the University Squadrons started a year ago with a maximum number of 25 members and half way through this year the membership was increased to 50. They had already provided excellent candidates for commissions in the R.A.F., and in the

INDIA'S CONTROLLER OF CIVIL AVIATION.

Though no official statement has yet been issued, one is informed on reliable authority that Lieut.-Colonel F. C. Shelmerdine, O.B.E., has been appointed Controller of Civil Aviation for India, under the new scheme for the development of Civil Aviation recently announced by the Indian Government.

For the past seven years and more Col. Shelmerdine has served in the Department of Civil Aviation. In 1920 he was one of a long list of Senior Assistants in the Department of the Controller-General of Civil Aviation, Major-General Sir F. H. Sykes. In 1921 he became, with Mr. G. B. Cockburn, one of the two Senior Assistants to Brig.-Gen. Francis Festing, who had been appointed Controller of Aerodromes and Licences. Later, when the Department of Civil Aviation was reduced to a Directorate, Col. Shelmerdine became sole Senior Assistant to Lieut.-Col. Ivo Edwards in the Aerodromes and Licensing Branch.

Col. Shelmerdine was an officer of The Green Howards (the Yorkshire Regiment), the old 10th Foot, and joined the Royal Flying Corps during the War 1914-18.

Throughout his service in the Department of Civil Aviation Col. Shelmerdine has proved himself to be a highly efficient official, but besides that he has won the personal respect and liking of everybody who has come in contact with him. In dealing with aerodromes and licences, especially the licensing of temporary aerodromes for joy-ride outfits, he has come up against men of difficult temperament and circumstances which were equally difficult, and he has handled them all with unflinching tact combined with firmness. And many a pilot who is doing well to-day owes his first steps towards success to the personal kindness and consideration of Col. Shelmerdine.

His long and intimate experience of the development of Civil Aviation in this country, coupled with his knowledge of war flying, and his position as an officer of the old Regular Army, provide all the material necessary for his future success as India's first Director of Civil Aviation. He carries with him to his new task the good wishes of everyone with whom he has had dealings.—C. G. G.

THE C.A.T.O. MIDDLE EAST.

Mr. F. Tymms, M.C., has been appointed Civil Air Traffic Officer for the Cairo-Karachi section of the Imperial Air Route, to replace Lt.-Col. F. C. Shelmerdine, now appointed Controller of Civil Aviation for India.

Mr. Tymms joined the R.F.C. in January, 1917. Some years before the War 1914-18 he had been a Territorial, and before that a Volunteer. On the outbreak of war he joined the 4th Battalion The Prince of Wales's Volunteers (The South Lancashire Regiment)—the old 40th Foot, and while serving with them he won the Military Cross.

In 1923 Mr. Tymms was appointed Staff Officer under Group-Capt. L. F. Blandy, D.S.O., Controller of Communications in the Department of the Chief of the Air Staff. In 1924 he was appointed Staff Officer under Lieut.-Col. Ivo Edwards, C.M.G., Deputy-Director of Air Transport, and has held that post ever since.

Mr. Tymms has made aerial navigation his speciality, not only in theory but very much in practice. He went with the Oxford University Arctic Expedition to Spitzbergen and there worked out all their navigation and did their meteorological

Auxiliary Air Force, and had diffused general knowledge of flying throughout the Universities. The total amount of flying done by the Cambridge University Squadron last year was equal to once round the World.

Replying to Col. Moore-Brabazon he said that good progress was being made with the Schneider Trophy machine.

SIR SAMUEL HOARE replying to Mr. Baker on the subject of Air Ministry officials having outside interests said that if a man was in an employment which he might lose in six months' time his position was different from that of a man who had security of employment for the whole of his life.

MR. GILLET (Finsbury, Labour) also dug up the question of Air Ministry contracts and expenses and so forth and by way of showing his knowledge of his subject said that "At the Staff College at Andover it costs £538 a year for the education of each of the cadets officers in training."

[It will be news to most people that cadets are trained at Andover. Still, that is about on a par with the average Labour man's accuracy of statement when he is dealing with public affairs.]

CAPTAIN FRASER (St. Pancras, Conservative) spoke in favour of employing ex-Service men as temporary Civil Servants, and Sir Samuel Hoare told him that in this respect the Air Ministry had a very good record as there was a higher percentage of ex-Service men there than in any other department of the State.

CAPTAIN GARRO JONES on the subject of the pay of the R.A.F. protested against the payment of fines for minor offences by airmen. Sir Samuel Hoare said that he thought they would be regarded as better than confinement to barracks and other forms of military punishment.

CAPTAIN GARRO JONES on Vote 3 (Technical and Warlike Stores) wanted to know why a high altitude training chamber cost £4,250 and a seaplane testing tank £15,000. Sir Samuel Hoare said that he thought the sums not excessive.

The House then adjourned.

work. Thereafter, on joining the Air Ministry, he made the plotting of air routes his particular hobby. He acted personally as navigator for a number of the airway pilots on their first voyages to various parts of Europe, and notably supervised the navigation of the air line to Berlin. He also acted as navigator to Major Hemming on his memorable trip to Gothenburg under very difficult circumstances.

Not only did Mr. Tymms specialise on the actual navigation problems as such, but he discovered all the landing places along the various routes and amassed information about aerodromes in different countries and the air regulations of such countries. The result was that anybody wanting to make a voyage to a foreign country and applying to Mr. Tymms would receive, in an astonishingly short time, not only all directions as to compass courses and probable weather conditions, according to the time of year, but a complete list of regular landing grounds along the proposed route, and information as to where to apply for landing permits and approximately how long it would take to get such permits.

His encyclopaedic knowledge of such work applied not only to flying on the Continent of Europe but, at the two extremes, to collecting and tabulating all information of that kind for such long flights as those made by Mr. Cobham, before he became Sir Alan, and, at the other end of the scale, to local flights within the British Isles. In fact, as one of his friends remarked, "If you wanted to land at Chorlton-cum-Hardy all you had to do was to ring up Tymms, and without referring to a book he would tell you to ring up Mr. John Jones at some Chorlton telephone number and ask whether you could use his field, and then he would give you your compass course and a weather forecast offhand."

In his new position in the Middle East, Mr. Tymms will naturally be considerably more than the ordinary Civil Air Traffic Officer looking after the running of the Air Port at Heliopolis. If his activities were to be confined to such work, his abilities would merely be wasted.

The probability is that most of his work will consist in studying and tabulating and registering the flying conditions all the way from Cairo to Karachi, and no doubt when that section of the line is running as regularly as, say, a French railway (which is not asking much of it) his activities will be extended to the rest of the line all the way to Australia.

Although he is so much of a specialist in pure navigation. Mr. Tymms' personal experience of flying is such that he is not likely to forget the more mundane matters of suitable landing ground and the best deviation from a strict compass course to keep within reach of such ground. So one may be sure that under his supervision the Cairo-Karachi route will develop into one of the safest air lines in the World.

His absence from England will be severely felt by all the long-distance pilots who have for years been in the habit of relying on him for the comprehensive information which he has been accustomed to give them whenever they have intended making a long voyage. One can only hope that he has stored the mass of information which he has acquired so that it will be readily accessible by those who will have to do his work in this country in future. The vital importance of the proper organisation of the air line to the East justifies his removal from England, but he will be sadly missed.

C. G. G.

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THE ROYAL AIR FORCE.

The London Gazette.

Mar. 8.

GENERAL DUTIES BRANCH.—The following Plt. Offs. are promoted to the rank of Flg. Off.:—D. S. E. Vines (Nov. 14, 1926); T. E. Worsley (Jan. 30); P. G. Tweedie (Feb. 7); D. S. Thomas, J. D. Greaves, A. V. Harvey (Feb. 13).

The following Sq. Ldrs. are placed on half-pay, scale B:—R. T. Leather, A.F.C., from Mar. 9 to 18, 1927, inclusive; W. H. Park, M.C., D.F.C., from Mar. 2 to 5, 1927, inclusive.

Flg. Off. D. Robinson (Lt., Glos. Regt., T.A.) takes rank and precedence as if his appointment as a Flg. Off. bore date May 15, 1926, immediately below Flg. Off. E. B. C. Groner on the gradation list. Reduction takes effect from Dec. 27, 1926.

The following Flg. Offs. are placed on the retired list:—J. B. V. Glyde (Mar. 6); H. H. S. Scott, D.S.M. (Mar. 5).

The following Flg. Offs. are transferred to the Reserve, Class A:—W. A. Chase (Mar. 7); A. H. C. Derby (Mar. 9).

Flg. Off. (hon. Flt. Lt.) R. H. S. Peter (Lt., R.N., retired) resigns his S.S. comm. (Mar. 7).

STORES BRANCH.—Plt. Off. on probation H. N. Davies is confirmed in rank (Dec. 24, 1926).

MEDICAL BRANCH.—Flt. Lt. T. McClurkin, M.B., D.P.H., is promoted to the rank of Sq. Ldr. (Mar. 5).

RESERVE OF AIR FORCE OFFICERS.—Plt. Off. M. E. de L. Hayes is promoted to the rank of Flg. Off. (Dec. 7, 1926). (Substituted for notification in the Gazette of Feb. 25, 1927). Plt. Off. V. P. Field is confirmed in rank (Mar. 7). Flt. Lt. F. J. A. Burke is transferred from Class A to Class C (Mar. 3).

The following relinquish their comms. on completion of service:—Flg. Off. R. M. H. Young (Feb. 19); Flg. Off. J. E. L. Skelton, Flg. Off. G. M. Stephenson, Plt. Off. G. O. Wood (Mar. 4).

Plt. Off. on probation Stanley Armitage is removed from the Service (Feb. 25).

Appointments.

Week ending Mar. 14.

GENERAL DUTIES BRANCH.—Wing Commanders G. C. St. P. de Dombasle, O.B.E., to R.A.F. Depot, Uxbridge, 15/2. E. R. Manning, D.S.O., M.C., to R.A.F. Station, Northolt, to command, 15/2. C. F. A. Poyal, D.S.O., M.C., to No. 7 Sqdn., Bircham Newton, 1/3, to command with effect from 19/4. A. Sebert-Wilson, to R.A.F. Depot, Uxbridge, Supernumerary, pending posting on transfer to Home Estab., 11/3.

Squadron Leaders V. S. E. Lindop, to No. 208 Sqdn., Egypt, 26/2. J. K. Summers, M.C., to No. 47 Sqdn., Egypt, 14/2. W. B. Hargrave, O.B.E., to No. 99 Sqdn., Bircham Newton, 7/3.

Flight Lieutenants A. W. Symington, M.C., to No. 1 School of T.T. (Apprentices), Halton, 14/3. C. F. Toogood, to No. 7 Sqdn., Bircham Newton, 1/3. T. Henderson, M.C., A.F.C., to No. 4 Armoured Car Coy., Iraq, 22/2. K. E. Ward, to No. 2 Armoured Car Coy., and Repair Section, Palestine, 22/2.

Flying Officers G. A. Elliot, M.C., to No. 208 Sqdn., Egypt, 20/2. J. S. L. Adams, to No. 47 Sqdn., Egypt, 21/2. G. M. E. Shaw, to No. 216 Sqdn., Egypt, 14/2. H. A. Evans-Evans, to No. 2 Armoured Car Coy. and Repair Section, Palestine, 21/2. N. A. P. Pritchett, to No. 43 Sqdn., Tangmere, 1/3. E. S. Burns, to R.A.F. Training Base, Leuchars, 25/1. W. E. Johns, to H.Q., Air Defence of Great Britain, Uxbridge, 15/3.

Pilot Officers J. G. Foreman and E. H. Irving, to No. 100 Sqdn., Spittlegate, 7/3. G. Selk and C. H. A. Colman, to No. 32 Sqdn., Kenley, 7/3. L. C. L. Murray, F. Townsend and A. A. Koch, to No. 4 Sqdn., Farnborough, 7/3. G. M. Beattie, to No. 14 Sqdn., Palestine, 25/2.

MEDICAL BRANCH.—Squadron Leader A. J. Brown, D.S.O., to H.Q., Egypt, 4/3.

Flight Lieutenant C. A. Lindup, to H.Q., Air Defence of Great Britain, Uxbridge, 15/3.

Flying Officers A. L. St. A. McClosky, to Research Laboratory and M.O.S. of I., 2/3. R. Thorpe, to Research Laboratory and M.O.S. of I., on appointment to a S.S. Comm., 2/3. G. E. Church, M.B., to R.A.F. Hospital, Halton, 11/3. R. A. W. Kerr, to No. 2 F.T.S., Digby, 11/3. M. D. Rawkins, M.B., to R.A.F. Hospital, Halton, 11/3. Flying Officer (Dental) P. M. Margand, to R.A.F. Depot, Uxbridge, on appointment to a Temp. Comm., 1/3.

STORES BRANCH.—Squadron Leaders F. Petch, O.B.E., to No. 22 Group H.Q., Farnborough, on transfer to Home Estab., 25/2. E. M. Cashmore, to No. 23 Group H.Q., Grantham, 7/3.

Flight Lieutenant N. A. Young, to H.Q., Special Reserve and Auxiliary Air Force, 7/3.

Flying Officer A. J. Redman, D.F.C., to R.A.F. Depot, Uxbridge, 28/1.

CHAPLAINS BRANCH.—The Rev. P. C. C. Lamb, M.A., to H.Q., Halton, 18/2.

Fatal Accidents.

The Air Ministry regrets to announce that No. 157816 Corporal Arthur East, A.F.M., of the Home Aircraft Depot, Henlow, was killed at Biggin Hill, Kent, on Mar. 9, while carrying out a demonstration parachute jump.

At the inquest, which was held on Mar. 11, a verdict of death from misadventure was recorded. Flt. Sgt. Woods, the pilot of the machine, said that East jumped at a height of about 6,200 ft. Cpl. Barrett said that he had helped East to pack the parachute and he was perfectly satisfied with everything.

Flg. Off. Grace, in charge of parachute training, said that East was less than 100 ft. from the ground when he pulled the rip-cord. The parachute was examined and found to be in perfect order. He thought Cpl. East had misjudged the distance from the ground.

The Air Ministry regrets to announce that as the result of an accident at Moorpark Aerodrome, Renfrew, to a Bristol Fighter machine of the Civil Flying School, Renfrew, on Mar. 10, Flg. Off. John Matthew Walker, Reserve of Air

Force Officers, the pilot and sole occupant of the aircraft, was killed.

The Air Ministry regrets to announce that as the result of an accident at Peshawar, India, to a Fairey IIIF machine of No. 69 Squadron, Kohat, on Mar. 12, Flg. Off. (hon. Flt. Lt.) Robert Owen Rigg, the pilot of the aircraft, No. 362688 L-AC. Patrick John Sexton, and No. 327848 L-AC. William James Meaden, were killed.

R.A.F. Prize Cadetships.

The Air Ministry announces:—

With a view to obtaining the widest field of recruitment for permanent commissions in the R.A.F. and to throwing the profession open to able boys from the public and secondary schools without respect to means, the Air Council have decided to increase the number of Prize Cadetships offered for competition annually from three to twelve. These Prize Cadetships enable boys to complete the two years' course at the R.A.F. Cadet College, Cranwell, at a cost of only £40 in all to their parents. When Flight Cadets are commissioned at about the age of twenty they become independent of any assistance from their parents and have before them a permanent and pensionable career.

The normal cost to parents of the two years' course at Cranwell is £250, composed of fees at £25 a year and a deposit for uniform, books, etc., of £100. Flight Cadets receive pay at the rate of 7s. a day and this should suffice with proper care to meet all expenditure for messing, games, etc., and to provide adequate pocket money. Parents are advised not to supplement this sum by a private allowance.

Prize Cadetships and ordinary cadetships are competed for at the joint examination held by the Civil Service Commission in June and November each year for entry into the R.A.F. (Cranwell), the Army (Woolwich and Sandhurst), and the Royal Navy (Special Entry).

For Cranwell candidates must be between 17 and 19½ years of age, and must be in possession of School Certificate A or B.

Applications for the June examination must reach the Civil Service Commission on or before the 4th of May. Further information can be obtained on application to the Secretary, Air Ministry, London, W.C.2.

The Air Council believe that the offering of this increased number of Prize Cadetships will go far to realise their aim of widening the area from which R.A.F. officers are drawn.

The Service Flight to the Cape.

A new Service flight to the Cape will start from Cairo on Mar. 30, and will carry out various co-operation exercises with the South African Air Force and with the King's African Rifles.

The R.A.F. Flight will be under the command of Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., who will pilot one of the machines. The Officer in charge of Navigation will be Flt. Lt. D. L. Blackford, of H.Q., R.A.F., Middle East. The rest of the personnel will be drawn from No. 47 (Bombing) Squadron now stationed at Helwan, and will include Sq. Ldr. R. S. Maxwell, M.C., D.F.C., Flt. Lt. S. D. Macdonald, D.F.C., Flg. Off. D. L. G. Bett, F.S. Evans and F.S. Johnson, sergeant officers, and one Leading Aircraftsman.

The equipment will be four Fairey IIIFs. (450 h.p. Napier Lions), which, according to the programme of the Delhi Pageant, have a speed of about 140 miles per hour.

The distance covered will be about 12,000 miles, and the Flight is due back in Cairo on May 22.

At Nairobi the Flight will co-operate with the 3rd King's African Rifles, and on the return journey the Flight will co-operate with the 2nd King's African Rifles at Tabora.

At Grahamstown, which will be reached on about Apr. 25, the R.A.F. Flight and the South African Air Force Flight will carry out combined exercises with the South African Ground Forces.

The detailed itinerary is as follows:—

Heliopolis, Mar. 30; Khartum, Mar. 31; Malakal, Apr. 2; Mongalla, Apr. 3; Kisumu, Apr. 4. At Kisumu they will meet the South African Air Force Flight.

Nairobi, Apr. 6, 7, 8, and 9; Tabora, Apr. 10; Abercorn, Apr. 11; N'Dola, Apr. 12; Livingstone, Apr. 14; Bulawayo, Apr. 15; Pretoria, Apr. 16.

On Apr. 19 the R.A.F. Flight will go alone to Bloemfontein, and on the 20th to Cape Town, where they will stay for five days. On Apr. 25 they will join the South African Flight again at Grahamstown, and proceed to Durban, and then to Pretoria, where they will stay until May 8.

The return journey will be Bulawayo, May 9; Livingstone, N'Dola, Abercorn, Tabora, Kisumu, Mongalla, Malakal, Khartum, Wady Halfa, Heliopolis, May 22.

The England-India Flight.

Now that the whole story of the proposed attempt by R.A.F. pilots on the World's non-stop and long-distance record has been disclosed by the Press, it is as well to purely historical reasons to set down the plain facts of the scheme. They are briefly as follows:—

Certain Hawker Horsley day bombers, with 750 h.p.

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[Flight Photo.]

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Rolls-Royce Condor engines, have been equipped with special tanks which will enable them to stay in the air for something over 40 hours at ordinary cruising power. One of these machines, with Flt. Lt. C. R. Carr, D.F.C., as pilot, and Flt. Lt. E. M. Gillman as second pilot and navigator, will start about the middle of May, if preliminary tests are satisfactory, with the intention of going as far as possible towards India. Whether they reach India or not will depend very largely on what sort of luck they have with the wind.

It is possible that a second machine may attempt the same journey. It may start at the same time so that if one machine is brought down by mechanical trouble the other may go on and finish the journey. Or possibly one machine may be kept back till news has been received as to the landing-place of the first machine.

Presumably if the first machine gets to India the second will not start, but if the first machine comes down for some reason or another at any place short of the existing record, which is 3,345 miles, from Paris to Jask on the Persian Gulf, the second machine will attempt the flight.

Flt. Lt. Carr won the D.F.C. during the War. Subsequently he left the R.A.F. and joined the Shackleton Expedition to the South Pole, during which Sir Ernest Shackleton died. During that expedition he flew the Antarctic Avro, which has since been used for seal-spotting from Newfoundland.

After his return he rejoined the R.A.F., and since then he has been responsible for what may best be called the "stage management" of the R.A.F. Pageant, work which calls for very considerable organising efficiency.

Flt. Lt. Gillman was one of the pilots in the Cairo to the Cape and back flight last year.

One would like to point out that a non-stop flight to India is by no means the end of such performances. It is well to remember that in June, 1924, Lieut. R. L. Maughan, on a Curtiss P.W.8, flew from the Atlantic coast to the Pacific coast of the United States, a distance of 2,670 miles, between dawn and dark.

Therefore there seems no particular reason why the 4,000 miles between England and India should not also be covered first of all in 24 hours, and ultimately in daylight.

The standard American pursuit ship does 180 miles an hour, so that with properly arranged stages to fill up the tanks, an aeroplane of equally high performance, if we had such a thing in the British Service, could do the journey to India in 24 hours and have about two hours to spare for filling up on the way.

But judging by the speed of the Schneider Trophy winners, which would be very close to 300 miles an hour if fitted with wheels instead of floats, there is no reason why a real speed machine, such as we shall have to develop for long-range photographic reconnaissance in the next war, should not do close on 250 miles an hour.

Such a machine, with proper arrangements for quick refuelling at efficiently organised aerodromes, could very well do the whole journey from England to India between daylight and dark in, say, 16 hours.

Probably such a flight will not be done for another four or five years, but if the Department of Supply and Research really settled down to its job it would be quite possible to do the flight next year.

The Fleet Air Arm.

The Times of Mar. 15 states:—

The coming completion of the aircraft-carrier *Courageous*, converted from a cruiser, is foreshadowed by the appointment to the ship as from to-day of Captain Aubrey Lambert, late King's Harbour Master at Malta, and formerly in command of the torpedo school-ship *Defiance*. The *Courageous* is not due to be ready until the end of this year, and meanwhile Captain Lambert will also be employed with her sister-ship, the *Glorious*, which is likewise being converted at Devonport. Five new flights, equal to 24 squadrons, are required for the completion of aircraft for the *Courageous*, the strength of the Fleet Air Arm being thereby raised to 23 flights.

No. 55 Squadron Annual Dinner.

The Annual Dinner of No. 55 Squadron will be held at the Trocadero Restaurant, Piccadilly Circus, on Saturday, March 26, at 7.30 p.m. for 8 p.m. Tickets will be 10s. 6d. each, exclusive of wines.

Application for tickets should be made to Sq. Ldr. C. H. Nicholas, R.A.F. Headquarters, No. 22 Group, South Farnborough.

The R.A.F. (India) Dinner.

The Fourth Annual Re-Union Dinner for Officers who have served with the R.A.F. India Command will be held at the New Princes Restaurant at 7.30 (for 8.0 p.m.), on March 26. The chair will be taken by Air Vice-Marshal Sir Philip Game, K.C.B., D.S.O.

Evening dress and miniatures.

Tickets, 10s. 6d. each (exclusive of wines), can be obtained on application to Flt. Lt. J. C. Walser, M.C., Royal Air Force, Farnborough.

R.A.F. SPORTS AND PASTIMES.

Rugby Football.

R.A.F. v. Civil Service.—The R.A.F. beat the Civil Service at Chiswick on Mar. 9 by a placed goal and a try (8 points) to a penalty goal and a try (6 points).

The Civil Service turned out a strong side under W. J. Gibbs, the Bath three-quarter. The side also included J. Hanley, the English forward, and A. V. Harding, of Cardiff. An extraordinary thing about this team was that the best players made the worst mistakes. Hanley missed two easy shots at goal from penalties and Harding and Gibbs, who both showed an almost uncanny foothold in the mud and swerved and sidestepped through the Air Force defence, both dropped the ball within a yard or two of the line.

At scrum-half, O'Connell was more than a match for Russell from the point of view of sheer speed apart from the fact that the Civil Service scrum gained by smart heeling what they lost in shoving powers. The Air Force forwards were superior in the loose, and led by Chick, whose hand-off swept Civil Servants away like froth before a Grand Typhoon, raided the enemy territory again and again. One of these raids ended in an Air Force goal. Chick kicked ahead, and, following up with a burst of speed that will probably put him on the Secret List, beat two Civilians and fell on the ball. Maxwell converted the try.

The Civil Service started the scoring with a penalty goal kicked by Hanley in the first quarter of an hour. The R.A.F. steadied after this and an attacking movement started by Russell followed by an exchange of clean well-timed passing between Hodder and Bryson ended with a fine sprint and a try by Hodder. The goal-kick failed.

Chick's try came very soon after this and the R.A.F. were well ahead. Then the rain came down in a good solid sheet and the ground, which was in a bad condition at the start, became very treacherous. The Civil Service proved better exponents of the Black Bottom than the Air Force, and Gibbs slid in for a try. The goal-kick failed.

The second half was a glorious battle. The Air Force were on the defensive practically the whole time and although once or twice the defence rocked on its foundations it held to the end. The whole side went full-out. Russell found touch again and again and the attacking forces were crashed right and left in the mud with deadly tackling. It was a good show.—C. M. MCA.

The R.A.F. team were:—
Flg. Off. E. B. Buns, back; Flt. Lt. O. C. Bryson, Flt. Off. F. S. Hodder, AC. D. Massey, and Flg. Off. G. D. Harvey, three-quarter backs; Flt. Off. J. Norwood and Sq. Ldr. J. C. Russell (captain), half-backs; Flg. Off. F. V. Beamish, I.-AC. Rollings, Flg. Off. J. C. Franks, Flt. Lt. P. G. Chichester, Flt. Lt. G. H. H. Maxwell, Flg. Off. C. J. S. O'Malley, Cpl. M. G. Christie, and Flt. Lt. J. S. Chick, forwards.

The R.A.F. Rugby Cup.

Manston v. No. 58 Squadron.—The semi-final between Manston and No. 58 Squadron, Worthy Down, was played at the Depôt ground, Uxbridge, on Mar. 12. No. 58 Squadron won by 5 goals and 2 tries to 1 goal. Manston scored first, and held their lead for some time, chiefly through the efforts of the forwards, who played a vigorous, unskilful, game. No. 58 Squadron had better halves and a really good three-quarter line. These began to assert themselves after about half an hour's play. The stand-off half scored a try, followed by another try by the right wing man. The second try was converted.

In the second half No. 58 had the wind with them and scored four more goals and another try. The Manston defence went to pieces badly, and 58 had practically no serious opposition to their attacks. Although their passing was accurate and well timed, and their handling excellent, a little good low tackling by Manston would have cramped their style considerably, because they made little ground and were much inclined to rely on one or two "star-turns."

No. 58 Squadron are to be congratulated on their success. They are the first Squadron team to get into the final in this competition and it is only by astonishing keenness and hard training that so small a Unit can have done so well.

The final will be played at Uxbridge on Mar. 19, when No. 58 Squadron will play Felixstowe, who beat Sealand.—C. M. MCA.

Association Football.

Army v. R.A.F.—The Army beat the R.A.F. at Tidworth on Mar. 12, by 5 goals to 3. *The Morning Post* account of the game states:—

Four thousand spectators saw a good game, the Army forwards playing finely at times, the goal scored by Lieut. Hegan following a run from the halfway line being a brilliant piece of work. A feature of the match was the splendid display in goal by Baker. But for his great work the score against his side would have been much heavier.

The Army winning the toss were soon aggressive, but many passes went astray. Grist opened the scoring for the Air Force with a low shot and later Baker saved finely from Preston. Shortly after this Arrowsmith, who was the only change in the Army original team, put the sides on level terms. Morris placed the Airmen in front again, but Arrowsmith, who was a dashing leader, once more got the equaliser, and the scores were still level at half-time.

Upon resuming the Army pressed immediately, and Arrowsmith completed his hat trick with a good goal. Stockton increased the Army lead soon afterwards. Webster scored for the Airmen from a penalty, and in the closing stages Hegan, with a great effort, went through on his own to score the fifth and last goal of the match.

The Air Force team were:—

L.-AC. Baker (Halton); L.-AC. Bangay (Cranwell), Flg. Off. Webster (Martlesham); Cpl. Atkin (Cranwell), L.-AC. Robinson (Henlow), A.C. Hogg (Eastchurch); Sgt. Turner (Netheravon), Flg. Off. Chipper (H.M.S. Furious), A.C. Bennett (Duxford), A.C. Morris (Halton), A.C. Grist (Cranwell).



The Loening Amphibian Now Carries 2,500 lbs. of Useful Load.

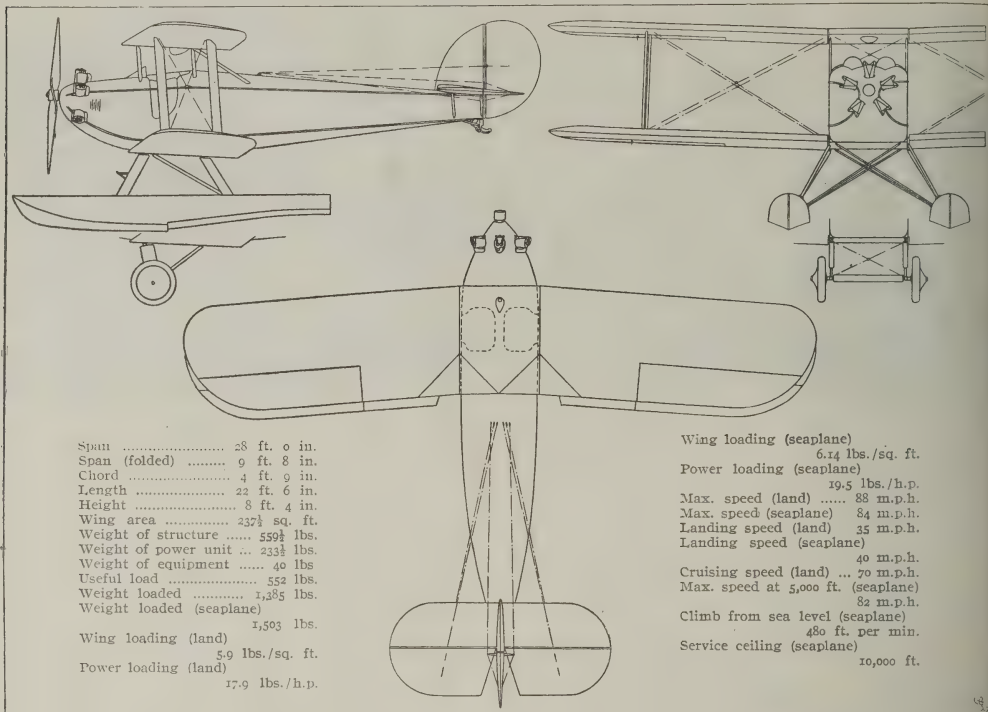
When real hard jobs are to be done, such as, dangerous exploring, difficult photography, and the making of surveys, and for the daily grind of observation and spotting of gun fire, towing targets, launching from catapults, landing on carriers, the U.S. Government uses the Loening Amphibian,

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**LOENING AERONAUTICAL ENGINEERING CORPORATION,
31st Street and East River, New York City, U.S.A.**

THE BLACKBURN BLUEBIRD.



In 1924 the Air Ministry organised a competition, the object of which was to produce a two-seater light aeroplane suitable for use as a training machine for the Flying Club scheme then under consideration.

Among the various machines produced for the competition was the Blackburn Bluebird, a side-by-side, two-seat biplane then fitted with a three-cylinder radial Blackburne engine.

Owing to the difficulty of getting satisfactory engine performance in their own preliminary tests, the Blackburn Company very wisely did not compete. The result of the Air Ministry Competition, which produced nothing of any value for the Light Aeroplane Club scheme, is now ancient history.

The lack of a suitable radial engine for the Bluebird, together with the activities of the Blackburn firm solely in the direction of service aircraft, left the Bluebird in the backguard for a period of two years or so.

In 1926 the Armstrong-Siddeley company produced the Genet five-cylinder radial engine, and one of the first engines of this type was installed in the Bluebird in September in time for the 1926 *Daily Mail* Lympne Competition.

Although the Bluebird was prevented from competing in the principal competition by the bending of an undercarriage fitting in a landing in the elimination tests, the replacement of which was prohibited by the Stewards, the Bluebird retrieved its reputation by winning the race for the Grosvenor Cup, piloted by Sq. Ldr. W. H. Longton, D.F.C., A.F.C., R.A.F., out of a field of twenty-one entries at an average speed of 84.95 m.p.h. over a 75-mile course.

Having found a suitable engine the Blackburn Aeroplane and Motor Co. Ltd. decided to proceed with the development of the type.

At the end of the Lympne meeting it was flown back to Brough by way of Croydon and Manchester.

Early in the New Year, from experience on the machine, which had been in the air almost continuously since September, it was decided, with the exception of certain minor developments and with regard to comfort of the crew, to adhere as closely as possible to the original 1924 design, and to develop the machine on a production basis. That this decision should be reached with the original machine reflects very considerable credit on the design staff of the Blackburn Company, especially Mr. Thornton, who was primarily responsible for the job.

The Bluebird, as has already been stated, is a two-seat side-by-side biplane, and was designed for preliminary training and pleasure flying.

The side-by-side seating arrangement was chosen for several

reasons. For instruction work the placing of pilot and pupil side-by-side makes instruction easier, by letting the instructor see what the pupil is doing, and *vice-versa*. At the same time it allows the crew to talk, so that the instructor can make sure that his instructions are properly understood and the pupil can answer his instructor and ask his advice at all times.

For pleasure flying the side-by-side seating makes for sociability and overcomes the comparative loneliness that is common in the more frequently used tandem-seating, particularly on cross-country flying.

From an aerodynamical point of view, side-by-side seating means that the heaviest loads are concentrated about the Centre of Gravity of the machine, with the result that a more stable and controllable aircraft can be produced.

Full control at low speeds is obtained as no offset loads can come into action at periods when the control surfaces are only receiving a minimum of air flow. The position of the crew on the axis of rotation also adds to their flying comfort in all evolutions, and particularly aerobatics.

Finally, centralisation of weight also means centralisation of structure strength, so that when once a strong centre structure construction has been obtained the remainder can be safely constructed at a minimum of weight.

CONSTRUCTION.

The fuselage is built in two sections, which are complete in themselves and are detachable from each other for repair or replacement.

The front part, comprising the main centre structure and including the cockpit, is built up of steel tube longerons, wooden bulkheads and is covered with a three-ply skin. There are three bulkheads; the first is the fireproof bulkhead and the second and third are the main cockpit members. This portion supports the top plane centre-section, the bottom plane roots and the undercarriage.

The rear part of the fuselage is of the normal four-longeron structure, faired both above and below, and is fabric covered.

The engine mounting consists of a triangulated steel tube structure in the form of two "Ws" in plan view. These are braced by a diagonal tube at each side, and the four points which form the bases of the two "Ws" are bolted to a rectangular steel plate fitting which is in turn bolted to the fireproof bulkhead.

The cockpit is situated under the centre-section. The seats are comfortably upholstered and to those who may be familiar with the original Bluebird it may be interesting to point out that in the 1927 model, in order to improve the view from the cockpit, the top plane has been raised six inches, the trailing edge of the centre-section has been cut away and the fuselage fairing has been curved more sharply in front of the cockpit.

The central fore-and-aft bridge dividing the cockpit in the old model has been removed, one through seat to accommodate both occupants has been fitted, and the interior has been lengthened to give more leg room.

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GREBES.

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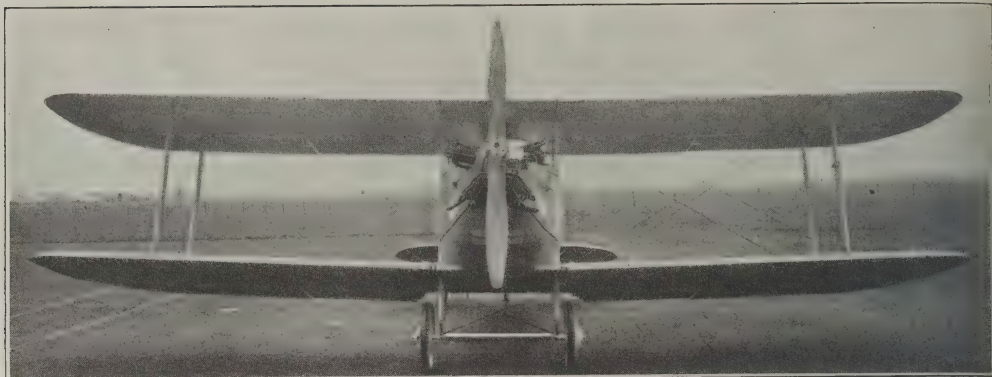
GAMECOCKS.

"The various Gloster single-seaters, wood and metal alike, watercooled and aircooled, have now definitely taken their place among the world's best aeroplanes."

The Aeroplane, Jan. 5th, 1927.

"Flight" photograph

GLOSTER



SIDE-BY-SIDE.—The front view of the Bluebird (Genet engine).

Side doors on both sides allow easy entrance and exit, and ample windscreens provide adequate protection without hindering the view. Each lower wing root has been reinforced for the purpose of stepping into the cockpit and the height of this is convenient from the ground.

The main fuel tank with a capacity of 16 gallons is mounted in the centre section, giving an ample head for gravity feed to the engine. The oil-tank is situated in front of the fire-proof bulkhead and oil is in constant circulation through the tank through a pipe circuit to and from the engine oil pump.

The wings are of normal single bay biplane construction. The top plane is staggered slightly forward, and both planes are swept back 5° from the centre plane.

The wing section is No. 64. The wings are built up of normal spruce spars and built-up ribs with internal bracing of duralumin tubular drag struts and steel tie-rods. All external bracing consists of streamline wires.

The top centre-section is braced laterally by streamline wires and is stabilised fore-and-aft by steel stay-tubes running aft from the back centre-section strut fittings to the back bulkhead of the front section of the fuselage. This is to enable a clean entrance through the doors on each side of the cockpit.

The wings are made to fold about the rear-spar wing-root joints, the folded width of the machine being 9 ft. 8 ins.

The tail unit is of the normal type consisting of fin, rudder, tail-plane and divided elevators. The tail and elevator construction is of the wood spar and rib type, braced internally by wood drag struts and steel tie-rods. The fin and rudder are built up of spruce ribs and duralumin framework. The whole unit is fabric-covered.

The undercarriage consists of two Vees, the front legs of which are telescopic and are sprung by rubber discs.

The Bluebird can also be supplied as a seaplane. The floats are of duralumin construction, according to the most up-to-date principles, and their design ensures good stability and manoeuvrability on the water, rapid acceleration and a short run to unstuck. The float undercarriage is a rigid structure of steel tubes attached to the same joints as the land carriage, with which it is interchangeable.

The engine fitted as standard is the 60 h.p. Armstrong-Siddeley Genet five-cylinder radial. This engine is of light weight (approximately 200 lbs.) and has an economical fuel consumption (approximately 3.7 gallons per hour). Its installation in the Bluebird is fully accessible for adjustments and replacements.

The 1927 Bluebird is being put into production and, as supplied, will be up to full factors for an aerobatic certificate. The standard machine will be capable of an endurance of 4 hours and will be equipped with tool-kit, cockpit, engine and airscrew covers, etc. The machine can be supplied with either or both the land undercarriage or twin-float chassis.

The prices are as follows:—

Bluebird land machine	... ..	£775
Float chassis (extra)	... ..	£200
Bluebird seaplane	... ..	£935
Land undercarriage (extra)	... ..	£40

These prices are for delivery at the works completely equipped and in flying trim and provided with an Air Ministry Certificate of Airworthiness.

Export prices are slightly higher and are as follows:—

Bluebird land machine	... ..	£850
Float chassis (extra)	... ..	£200
Bluebird seaplane	... ..	£1,010
Land undercarriage (extra)	... ..	£40

CONCERNING PARACHUTES.

Sir,—The inquest on Corporal East of the R.A.F. makes it clear that this fatality was caused through attempting a delayed-action drop, an experiment that has been responsible for several fatalities in different countries.

It is in the nature of a stunt and as it can only be attempted by a very few parachutists gifted with exceptional nerve and judgment it is difficult to see what military value it can have. Besides entailing a great strain on the heart and nervous system it requires the parachute gear to be of stronger and heavier construction than would otherwise be necessary.

The method I advocate for use with my own parachutes—one which could equally be used with the Air Ministry's American parachute—obviates all these objections, and is as follows:—

A special emergency parachute, 4 ft. 9 in. to 5 ft. 6 in. diameter is carried in a pocket in the airman's coat, a twin life-line being attached to his belt. Before jumping he withdraws this and holds it in his hand, releasing it after he has jumped. This ensures a velocity of descent strictly limited and yet high enough to make it difficult for any enemy machine to shoot him.

When he has fallen the required distance, he deflates and draws in this parachute, which can be done in about 1½ seconds, and immediately releases the pack parachute in the ordinary way.

(Signed) H. S. HOLZ, LT.-COL.

The Travellers' Club, Pall Mall, Mar. 12.



A NEAT PROFILE.—Side view of the Blackburn Bluebird (Genet engine).

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The finest aircraft may fail in its purpose if its equipment is unsatisfactory

The several items which will form the subject of this series of announcements are confidently recommended to the consideration of all Aircraft Designers, Manufacturers and Users, and to all concerned in the equipment of Air Organisations

LIGHTING EQUIPMENT FOR AIRCRAFT.

The new light pattern Vickers - Davis (patented) Navigation Lamps with Plug and Socket Mountings, together with the Vickers wind-driven 12-volt Generator, Combined Voltage Regulator and Cut-out, Switch Box and Accumulator, meet all requirements for night-flying equipment as laid down by the International Air Convention, 1919, and provide an installation of much lower weight than formerly has been available.

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All Enquiries should be addressed to:—

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**Telephone: VICTORIA 6900
Telegrams: VICKERS, SOWEST, LONDON.**

THE BRISTOL JUPITER SUPERCHARGED ENGINE.

Of the various methods of maintaining ground power at really high altitudes, one of the most promising is the exhaust-driven turbo-compressor. This uses the exhaust gases from the engine to drive a high-speed turbine, which drives a direct-coupled rotary compressor or blower which compresses the mixture to ground level pressure and density.

Amongst the advantages of this type are that it:—

(1) Provides real supercharging at high altitudes, giving nearly 100 per cent. increase in power at 20,000 feet, the comparative gain increasing with higher altitudes.

(2) The exhaust system, acting as a reservoir, provides a perfect cushion drive for the compressor unit, and however quickly the engine may be opened up the compressor accelerates gradually and smoothly.

(3) The system is almost self-regulating, the increased amount of boost required at high altitudes being automatically provided by the drop in the atmospheric pressure into which the turbine exhausts. If the pressure in the exhaust manifold of the engine remains constant, as it does very nearly, each fall in atmospheric pressure of 1 lb. per sq. in. gives an extra lb. per sq. in. available for driving the turbine at a higher speed.

This type of supercharger is used on the British Jupiter. The design has been based upon the extensive experimental work carried out by the Royal Aircraft Establishment.

The various component parts can be clearly seen on the illustrations showing the engine complete with supercharger. The turbo-compressor unit is mounted at the rear, slung from a platform attached to the rear cover of the engine. The exhaust-driven turbine wheel and the blower wheel in the induction system are mounted on the same shaft and rotate at the same speed in separate chambers, the turbine being nearer to the engine.

The exhaust from the cylinders is led by way of a gas-tight collector ring and piping, mounted on the front of the engine. To the exhaust turbine, the spent gases discharging to atmosphere through the flanged openings on the port and starboard sides.

The blower draws air through the air in-take, which is of the scuttle type opening forward, into the carburettor and then forces the mixture under pressure into the induction ring and inlet pipes at the rear of the cylinders.

Finned aluminium air-coolers are interposed between the blower outlets and the induction system, as the mixture is very considerably heated in the process of compression.

During the past year excellent results have been obtained and extensive flight tests carried out with this engine, on a machine in which a Series IV Standard Jupiter engine had been previously tested.

MINOR OFFICIAL OBSTRUCTIONISTS.

The foregoing information is a rearrangement of an account supplied to this paper by the Bristol Aeroplane Co. Ltd. It differs from the original only in some details of wording—that is to say it contains neither more nor less information than has been supplied by the firm.

According to the curious hybrid committee, representing the Admiralty, the War Office, and the Air Ministry, which instructs the Press as to what is, and what is not, secret, the supercharged Jupiter engine ceased to be secret in any degree on Jan. 1, 1927, and this paper has therefore been at liberty since then to publish any information it could obtain.

But one has very good reason for believing that certain departments of the Air Ministry do not consider themselves to be bound by the decisions of the afore-mentioned Committee. They have on more than one occasion denied to manufacturers the right to issue to the Press information which the Press has officially been authorised to publish. And this very scanty statement concerning the Jupiter is as much as the manufacturers consider it safe to issue.

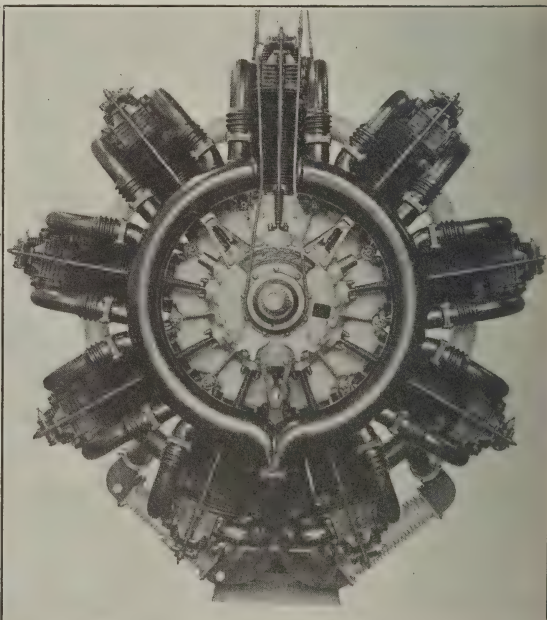
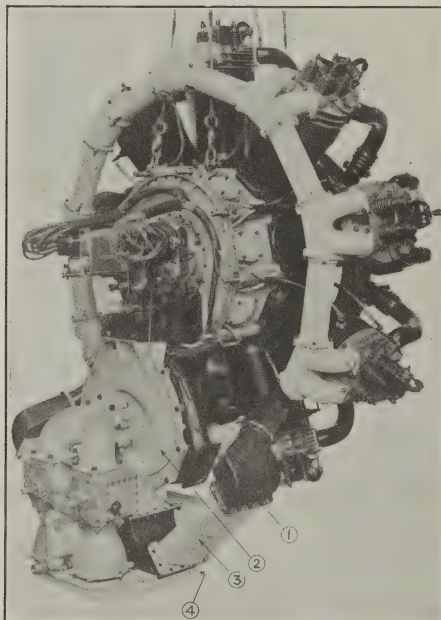
Under the circumstances it would not be fair to the Bristol Co. to amplify their description as it might quite easily be amplified. Readers who desire more information concerning this type of engine may be recommended to consult a paper recently read before a joint meeting of the Royal Aeronautical Society and the Institution of Automobile Engineers (reported in a condensed form in this paper).

These remarks are made as a public protest against the policy of the Higher Authorities being annulled by minor officials. Sir Samuel Hoare announced a year or so ago that greater liberty would be given to the publication of information about British aircraft material, so that thereby the over-seas trade of the British Aircraft Industry might be helped. Yet, here we have a specific instance of that policy being thwarted by officials whose only real power is the ability to obstruct.

AN IMPORTANT DATE.

On Thursday next, Mar. 24, Major Martin Wronsky, the Managing Director of the Luft Hansa, the biggest Air Traffic Combine in the World, will lecture on German Commercial Aviation to the Royal Aeronautical Society, at the Royal Society of Arts, John Street, Adelphi, at 6.30 p.m.

This is an event which should not be missed by anybody who is anybody in British Aviation. Major Wronsky is the prime mover and power-plant, so to speak, of German Civil Aviation, and he is recognised as being the ablest man who has yet appeared in connection with Commercial Flying. Therefore, whatever he has to say will be worth hearing, apart from the fact that there is always interest in seeing face to face the men who really make history.



THE SUPERCHARGED BRISTOL JUPITER IV.—On the left is a rear view showing the supercharger and its accessories. 1 is the exhaust turbine casing, 2 the rotary blower casing, 3 one of the coolers for ingoing gas and 4 the air intake. On the right a front view shows the split exhaust ring with expansion joints between the ring and the valve ports. The air intake scoop and the air coolers can also be seen.

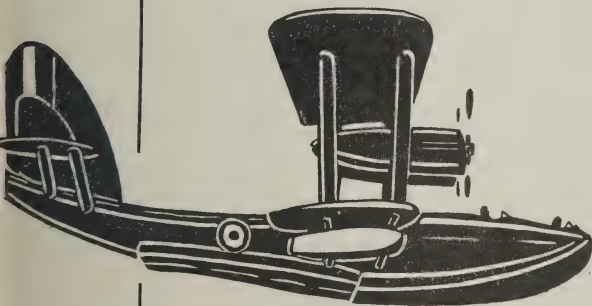
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THE FLYING CLUBS.

The London Aeroplane Club.

Report for week ending Mar. 12.

Flying was resumed for the first time during the month on Mar. 10 and the total flying time for the four days ending 12th inst. was 42 hrs. 30 mins.

Instructors.—Messrs. F. G. M. Sparks, A. S. White, and C. D. Barnard.

Dual Instruction.—L. W. Gibbens, G. H. Saxon Mills, G. H. Swan, A. J. Mulder, R. Drysdale Smith, E. R. Wilson, H. Solomon, H. Greenland, J. C. Grammond, J. J. Hofer, D. Hewett, E. F. Symmonds, R. Leighton Crawford, R. P. Cooper, R. Saunders Clark, G. M. Randall, H. M. Samuelson, H. O. Gugenheim, D. H. P. Esler, E. G. Meisgaacs, G. C. Bonner, F. W. R. Martino, F. C. Clarkson, E. J. B. King, Miss Fletcher, Major K. M. Beaumont, G. H. Craig.

Solo.—Capt. H. Spooner, O. J. Tapper, N. Jones, A. F. Wallace, G. H. Craig, Major K. M. Beaumont, L. J. C. Mitchell, A. R. Ogston, G. Terrell, M. L. Bramson, D. H. P. Esler, R. C. Presland, C. Eady, Miss O'Brien, Sq. Ldr. M. E. A. Wright, Lady Bailey, N. J. Hulbert, C. R. Campkin, S. O. Bradshaw, H. Solomon.

Passenger Flights.—A. I. Wilson, E. J. M. Bird, W. C. P. Tapper, G. H. Weston, D. A. Wilson, E. R. Wilson, G. W. Tapper.

ANNUAL DANCE.—Members are reminded that the Annual Dance of the London Aeroplane Club will be held at the Spring Garden Gallery, Spring Gardens, Trafalgar Square, S.W.1, on Tuesday, Mar. 22, 1927, 9 p.m. to 1 a.m.

The proceeds of the Dance will be devoted to the social amenities of the Club at Stag Lane Aerodrome, and it is therefore hoped that all members will support the Dance by coming themselves and bringing their friends.

Tickets, Single 12s. 6d., Double (Lady and Gentleman) £1 1s., may be obtained from Mr. F. G. M. Sparks, Stag Lane Aerodrome, Edgware, Middlesex, Mrs. Woods-Humphrey, 14, Elvaston Place, S.W.7, or at the Registered Offices of the Club, 3, Clifford Street, London, W.1.

The Lancashire Aero Club.

Report for week ending Mar. 12.

Total flying time 22 hrs. 35 mins., made up as follows:—

Dual with Mr. Brown:—Messrs. Musgrave 2 hrs. 5 mins., Caldecott 1 hr. 20 mins., Nelson 45 mins., Dobson 35 mins., Miss Brown 30 mins., Messrs. Dickinson, Davidson and Shiers 30 mins. each, Miss Emery 25 mins., Messrs. Stonex 25 mins., Michelson and Cohen 20 mins. each, Rodman 15 mins., Goodyear and Forshaw 10 mins. each.

Dual with Mr. Cantrill:—Messrs. Caldecott 45 mins., Forshaw 15 mins., Miss Brown 20 mins.

Solo:—Messrs. Twemlow 1 hr. 45 mins., Miss Brown 40 mins., Dr. Wade 40 mins., Gattrell 40 mins., Costa 20 mins., Lacayo 20 mins., Cantrill 15 mins., Dickinson 5 mins.

Joy-rides:—With Mr. Brown—Mr. Murrell 1 hr. 20 mins. (photography), Miss Branton 30 mins., Mr. Spruce 10 mins. With Mr. Costa—Miss Hobson 35 mins., Mr. Johnson 30 mins., Mr. Belliano 20 mins. With Mr. Cantrill—Mr. Fallon 45 mins., Mr. Thomas 10 mins. With Mr. Leeming—Mr. Nelson 30 mins. With Mr. Goodfellow—Miss Bodenham 25 mins. With Mr. Lacayo—Mr. Hartley 25 mins.

Test flights:—2 hrs.

Weather has been patchy, a good deal of rain and wind with bright intervals. Mr. Dickinson has put his first solo safely behind him.

A vast improvement in the amenities of the club-house was noticeable at the week-end under the new management of Signor Musso-Leeming. The new bar was excellent, and light refreshments were so exceedingly cheap that our Scottish member is reported as having seriously over-eaten himself and to be now lying in a critical condition.

There will be another mixed hot-pot and what-not at the Manchester Limited on the evening of Apr. 1. Further particulars later, but kindly book the date now.

The Newcastle-upon-Tyne Aero Club.

Report for week ending Mar. 13.

The Club has still only one machine on service, but in spite of a considerable amount of bad weather a fair amount of flying was put in during the week.

Total flying time 19 hrs. 50 mins. Dual instruction 5 hrs. 5 mins. Solo (training) 11 hrs. "A" pilots 3 hrs. 40 mins.

The following flew under instruction with Mr. Parkinson:—Mrs. Heslop, Sir Joseph Reed, Messrs. Stawart, Wilson, Rasmussen, Turnbull, Bainbridge. Advanced dual, Mr. R. N. Thompson.

Solo (Training):—Miss Leathart, Sir Joseph Reed, Messrs. Stawart, Bainbridge, Mathews, Turnbull.

"A" Pilots:—Dr. Dixon with Mr. Howard, Mr. Mathews and Mr. Purves. Mr. C. Thompson with Mrs. Heslop, Mr. Bertram and Mr. Luckman. Mr. R. N. Thompson also flew on several occasions.

Col. Sir Joseph Reed, the President of the Club, flew solo for the first time on Monday, putting up a very good flight and landing. Sir Joseph flew solo on subsequent occasions. It is believed that the Club holds the record among Clubs in having a flying President, or at any rate a soloist. Sir Joseph has persevered, and in spite of the fact that his many business activities do not allow of flying regularly, he has "got off" very quickly.

On Wednesday, after waiting patiently for about two months for a day suitable for height tests, Miss C. R. Leathart did the necessary tests for a Pilot's Licence. Though there have been days when tests were possible, Miss Leathart has not been able to attend the aerodrome, and on Wednesday she was unable to be there until late afternoon. By the time the Official Observer who represents the Royal Aero Club arrived, it was after 5 o'clock, though the weather was fine and bright with a brilliant sun. Very shortly after Miss Leathart took off, however, it began to cloud over and became very dark. She continued to climb until the necessary height was obtained, but by this time those on the aerodrome became really alarmed in case it was too dark for her landing. Flares were lit and car lights directed across the aerodrome. Miss Leathart came in and made a perfect landing, finishing the run within 20 yards of the point decided upon, and quite surprised to learn that anyone was perturbed about the matter. She certainly was not. Miss Leathart is the Club's first lady member to pass her tests.

The Midland Aero Club Ltd.

Report for week ending Mar. 12.

Total flying time 7 hrs. 28 mins. The following members were given dual instruction by Mr. McDonough:—E. P. Lane, S. H. Smith, F. Coxhill, C. Fellowes, J. Brinton, R. L. Jackson, H. Coleman. The following "A" Pilots flew:—J. Brinton, E. R. King, G. V. Perry. Mr. A. Ellison was given a passenger flight.

The Club has recently furnished a Club Room at the Aerodrome and this is now available for members.—V. M. P.

The Yorkshire Aeroplane Club.

Report for week ending Mar. 13.

Total flying time week 6 hrs. 55 mins., made up of:—Solo 4 hr. 55 mins. Dual instruction 2 hrs. 15 mins. Pleasure Flying 35 mins. Tests Nil.

Messrs. Mann, M. B. Lax, Wood and Norway flew solo and Messrs. Wilson, Oglesby and R. K. Lax received dual instruction.

On Wednesday Messrs. West and Lax flew over to Brough again with the intention of bringing back the Avro offered for the use of the Club by the North Sea Company. Unfortunately another hitch occurred and they were unable to bring it back. Mr. Lax flew back to Sherburn alone in the Moth.

Two more prospective members were given pleasure flights of 10 mins. each—on Tuesday Mr. Ottolini by Mr. West and on Wednesday Mr. Yeomans by Mr. Mann.

On Saturday afternoon Capt. Lamplugh, of the British Aviation Insurance Group, paid a visit to the Aerodrome to discuss Insurance and other matters with the Directors.—G. C. F. Z.

The Hampshire Aeroplane Club.

Report for week ending Mar. 11.

Mr. Thompson still being at Brough for his reserve training, no instruction has taken place, but the following members flew solo:—Señor de la Cierva 1 hr. 35 mins., S. Fry 30 mins., McKechnie 22 mins., Bowen 5 mins., and Simmonds 5 mins. Total solo time 2 hrs. 35 mins.

Señor de la Cierva flew from Hamble to Andover and Worthy Down and back.

We are pleased to be able to announce that the following gentlemen have now accepted the invitation of the committee to become Vice-Presidents of the Club:—Lieut.-Colonel Ormonde Darby, Mr. T. O. M. Sopwith, Mr. C. R. Faurey, Mr. F. G. T. Dawson.

A supper dance has been arranged to take place at the "Barova" café in Southampton on Thursday, Mar. 24. Tickets may be obtained from the Secretary.

The Norfolk and Norwich Aero Club.

The first meeting of the provisional Committee of the Norfolk and Norwich Aero Club has been held.

Mr. R. O. Clark, of 2a, Upper King Street, Norwich, has undertaken the work of Hon. Secretary for the time being.

The Committee decided that the first 250 members should be called Foundation Members and pay no entrance fee. The membership fee should be £3 3s. a year. The cost of flying should be approximately 30s. per hour for instruction and 20s. per hour for solo flying.

The Committee hope to have a Club House at the Aerodrome and a membership badge in due course.

A Karachi Flying Club.

The Morning Post correspondent at Karachi, in a message dated Mar. 9, states:—

A meeting of the provisional committee of the Air League of India last night elected Sir Montagu Webb Chairman of the League, and also decided to form the Karachi Light Aeroplane Club—the first of its kind in India.

BALLOON JUMPING.

The first experiments in the new joke of Balloon Jumping were carried out at Stag Lane Aerodrome on Friday, Mar. 11. A balloon 18 ft. in diameter had been constructed by the firm of Spencers for *The Daily Express*. L.-AC. Dobbs, of parachute fame, was the jumper.

The balloon, which was filled with hydrogen, developed a lift of 210 lbs. The jumper was attached to the balloon by a net which caused him to hang some 10 ft. below it. He was attached to the net by a harness which passed between his legs, and there was also a couple of padded metal rings for his shoulders.

In order to prevent his disappearing into the *ewigkeit* a 100-ft. cord with a sandbag on the end was attached. The balloon was fitted with a valve and a rip panel.

Mr. Dobbs was first of all ballasted to weigh about 20 lbs. and at this weight he was only able to make short, low jumps. Gradually the weight was reduced to 4 lbs., and with the drag rope and in a wind of about 20 m.p.h. he made some jumps of 15 ft. in height and 30 yds. in length.

It was obvious that with practice and a modified balloon there could be quite a lot of fun to be got with a jumping balloon. Also it demands skill.

An inventor also turned up with a pair of what he called "aerial oars," with which he hoped to propel the balloon. He was attached to the outfit and proceeded to flap violently with his oars without seeming to affect the normal course of the balloon.

Several prominent balloonatics were present. They took themselves very seriously, as usual.

Balloon-jumping might be useful to fill in gaps at flying meetings to amuse the crowd. Mr. Dick Dresser, of the Royal Aero Club, suggested that some form of punt-pole would be of use to the jumper. Which is not at all a bad idea.—C. D.

[Unhappily Mr. Dobbs was killed the same evening by contact with a high-voltage electric wire.—C. G. G.]

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per day.—Monday, 10; Tuesday, 11; Wednesday, 13; Thursday, 13; Friday, 11; Saturday, 11; Sunday, 1.

IMPERIAL AIRWAYS LTD.:

London—Paris; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam: Machines 27, passengers 192, freight 10 tons.

AIR UNION:

Paris—London: Machines 19, passengers 59, freight 14 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 12, passengers 35, freight 2 tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 12, passengers 25.

SABENA:

Brussels—London: Machines 0, passengers 0.

PRIVATE:

Machines 0, passengers 0.

Total number of trips by British Machines, 27, carrying 192 passengers. Foreign Machines, 43, carrying 99 passengers.

Comparative Figures:

Week ending Mar. 13:

Machines, 70; Passengers, 291; Crews, 116; Total personnel, 407.

Corresponding week, 1926:

Machines, 78; Passengers, 197; Crews, 90; Total personnel, 287.

Corresponding week, 1925:

Machines, 35; Passengers, 120; Crews, 67; Total personnel, 193.

Corresponding week, 1924:

Machines, 114; Passengers, 259; Crews, 194; Total personnel, 432.

Corresponding week, 1923:

Machines, 67; Passengers, 207; Crews, 126; Total personnel, 333.

Corresponding week, 1922:

Machines, 53; Passengers, 113; Crews, 88; Total personnel, 201.

Corresponding week, 1921:

Machines, 35; Passengers, 92; Crews, 43; Total personnel, 135.

Croydon Notes.

Aerodrome talk now turns in the direction of a possible machine shortage again this year for Imperial Airways Ltd. It will be recalled that in 1925, owing to various causes, the fleet of Imperial Airways was reduced to two units. Ever since then the fleet has been systematically augmented with new and up-to-date craft, and last year it was probably the best equipped air line in the world.

For this season they will have two Argosies each carrying 20 passengers. They may, if severe measures are employed, wrest the third Argosy from the Air Ministry, who can turn it to no good use. There is the Hampstead and the Hamilton each carrying 14 passengers. There are now two W.10 14-seaters. There were four, but one drowned a Pomeranian dog in the Channel and then sank, and the roof of a hangar collapsed on another. Also there are three W.8b 14-seaters, but these have been running since 1922 and are growing old.

Thus at times when all machines are in commission there will be seats for 138 passengers and if the Air Ministry disgorge their Argosy and the shed-shocked V.10 is repaired there will be 172 seats.

Now that Imperial Airways have given up the Amsterdam Line there should be enough for London—Cologne, London—Paris—Zurich and London—Ostende, but in view of the German, Dutch, French and other foreign activities one hopes to see our Imperial Company launch out on some bigger and longer European air routes.

Surely the air route to the East must run across Europe linking up the big capitals, for the simple reason that each section of such a route will provide its own traffic. The London—Malta—Cairo—Baghdad—Basra—Karachi route is all very well for through traffic, but through passengers would be a very small proportion of the total carried by a line running London—Cologne—Prague—Vienna—Buda Pest—Belgrade—Sofia—Constantinople—Aleppo—Baghdad—Basra—Karachi.

The German Luft Hansa are already realising the value of putting air travel within reach of the ordinary traveller. In April the air fare between London and Amsterdam will be £3. This is actually cheaper than train and boat fare. If this can be done by Luft Hansa over this distance, which is above 280 miles, why cannot the more used and shorter London—Paris service come down from £6 to £3 or less?

If we do not do it the French or even perhaps the Germans themselves may do it. One can well imagine the Germans running a circular route Berlin—Amsterdam—London—Paris—Brussels—Cologne—Berlin.

The Rohrbach-Roland three-engined machine is now running regularly to Croydon. One is told by those who have flown in it that the pilot's position is extremely blind and that it is likely to be a dangerous machine in thick weather because of the limited view.

The new G.31 Junkers with sleeping accommodation is expected at Croydon shortly. It is understood that a night service between Berlin and London is to be put into operation at once. This should be quite workable in view of the complete success attained by the Derflucht night service which has been flying nightly for more than a year between Berlin and Moscow.

A French Goliath, piloted by M. Sartecan, crashed near Tonbridge on Thursday. The photographs seem to indicate that had there been any passengers sitting in the nose they would have been killed or

injured as have other passengers in the past who have been sitting in the nose of a Goliath when it has crashed. In this there were no passengers and neither M. Sartecan nor his mechanic was hurt.—C. D.

THE KHARTUM-KISUMU SERVICE.

Further misfortune has overtaken the Khartum-Kisumu service of the North Sea Aerial and General Transport, Ltd.

It will be remembered that the D.H.50 "Pelican," the company's original machine, was damaged in preliminary trial on the Nile by hitting some obstruction in the water. The R.A.F. loaned a Fairey IIID. to the company, and with this machine the service was successfully inaugurated.

On March 13 this machine was returning from Kisumu on its second return trip, and on attempting to get off Lake Victoria the undercarriage collapsed.

It is stated that the engine was not giving its normal power and that the machine bounced four times after taking off, and on the fourth bump the undercarriage gave way. The machine slowly sank, and when it was being salvaged later its track was broken.

The mails, slightly damaged by water, were recovered, and the pilot, Mr. Boyle, and the mechanic, Mr. Blacklock, were unhurt.

SIR SEFTON BRANCKER IN KENYA.

Air Vice-Marshal Sir Sefton Brancker, after having flown from Khartum to Kisumu on the service operated by the North Sea Aerial and General Transport, Ltd., flew from Kisumu to Nairobi on a D.H.51 belonging to Lord Carbery who prefers to be known as Mr. Carbery (having assumed American citizenship), though his name is in fact John Evans-Freke and not Carbery. He was in the R.N.A.S. at the beginning of the War 1914-18, and is now coffee-planting in Kenya.

Sir Sefton was welcomed by the Acting-Governor of Kenya Colony, and was later entertained at a banquet given by the Acting-Governor and other leading citizens.

A DESERVED DISTINCTION.

The Times for March 11 contains the following notice:—
Athens, March 10.

The Greek Government has conferred the Golden Cross of the Order of the Redeemer upon Mr. Robert Blackburn, founder and head of the Blackburn Aeroplane and Motor Company, Limited, in recognition of his services to aviation in this country. This honour is thoroughly well deserved, not only for what Mr. Blackburn himself has done here but also for the good work done by his representative, Major Buck, and his staff of British and Greeks at his aircraft factory at Phaleron, where he is turning out machines for the Greek Government.

One congratulates Mr. Robert Blackburn on behalf of everybody concerned with flying in this country on this distinction. The pioneers of British Aviation have not been overwhelmed with distinctions at home, so it is the more pleasing to see their merits recognised abroad, and certainly nobody has deserved it more than has Mr. Blackburn.

Apart from the good work which he did as one of the earliest experimenters with aeroplanes in the dark ages somewhere about 1909, and apart from the valuable work which he did in producing aircraft during the War, Mr. Blackburn deserves special recognition for the outstanding enterprise which he has shown since the War. Instead of retiring on his war profits, as he was fully entitled to do after all his early pioneering, Mr. Blackburn deliberately set to work to do more pioneering in expanding British trade abroad, and he is only now reaping his reward.

He was one of the first members of the British Aircraft Industry to do business in Japan, where Major Chichester-Smith represents the firm, and since then he has extended his activities all over the World. With the help of Brigadier-General Festing, he negotiated with the Greek Government the building and equipment of the Greek Naval Aircraft Factory, of which work this decoration is a recognition. And it may be said that the work which is being done in the Greek Factory is fully up to the best British standards.

Since then General Festing has gone to South America, and unlike British manufacturers in so many lines of business, Mr. Blackburn has not expected him to sell his products from a catalogue. He has adopted the properly enterprising method of sending Mr. Worrall, a very able seaplane pilot, to Brazil with a two-seater training seaplane of the Velos type, with duralumin floats, to demonstrate to the South American Governments the Blackburn products.

He has also, as mentioned in THE AEROPLANE some time ago, sent Squadron Leader Sandford, one of the best pilots and engineers of the old R.N.A.S., to Australia, to establish

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lish Blackburn business in that Dominion. In addition Captain Andrews, who is a Blackburn pilot, organised and is still running the torpedo section of the Spanish Royal Naval Air Service at Barcelona, with Blackburn equipment.

Moreover, Mr. Blackburn has to his credit the production of two such extremes in aircraft design as the great Iris flying-boat, with her three Condor engines, and the little Bluebird with the small Genet. Also his was the initiative which backed the Khartum—Kisumu air-line.

Such outstanding enterprises as these fully deserve the success which they will in due course command.

CIVIL AVIATION IN INDIA.

The Times correspondent in Delhi in a message dated Mar. 1, states:—

When the Government Vote for the supplementary grant of 996,000 rupees (£74,700) came up in the Legislative Assembly to-day for the purchase of aerodromes in Bombay, Calcutta, and Rangoon, the unofficial speeches were led off by Dr. Moonji, a fiery Mahratta extremist from the Central Provinces, who denounced the official proposals for the development of internal aviation as another attempt to accord preferential treatment to Great Britain to assist her to exploit the people of India. But his speech was punctuated with humour, and its main argument was that India must have a progressive policy for internal aviation, and that an essential condition of this must be the training and employment of Indians.

The House generally perceived, although Dr. Moonji did not, that this was exactly the programme which the Government had indicated. Hence the debate developed excellently on its merits, and the Vote, with all its implications, was finally passed without a division. This cheerful unanimity was doubtless partly due to the Congress Party's perception that if it challenged a division it would suffer defeat, but its main cause was that the House for once got down to the merits of the question before it, instead of finding that the party leaders had already arranged how their followers were to vote without regard to what might be said in the debate.

The Government now, with the Assembly's approval, stands pledged to appoint a Director of Civil Aviation, and to encourage internal air services by subsidising companies with a rupee capital and a majority of Indian directors, the conditions of such subsidy being the training and employment of an Indian staff, or alternatively, if the necessary subsidies prove to have been too heavy a burden on the Treasury, to start State air services.

PORTABLE HANGARS.

In a paper read before the Institution of Aeronautical Engineers on Tuesday, Mar. 8, Major H. N. Wylie described a new type of steel-framed portable hangar which he has designed, which is now undergoing extensive tests by the Royal Air Force at home and abroad.

Major Wylie has been prominently concerned in the development

of steel construction for aeroplanes, and has applied his experience of this class of work to the design of the sheds in question.

The main structure of these sheds is built from steel tubes of aeroplane quality, the covering is of canvas, and the sheds themselves are amazingly light, easily transportable and erected, and have been shown by actual test to be able to withstand prolonged exposure to weather of the most trying kind.

Following on the recent heavy snowfall at Croydon and its disastrous effects on the contents of an older type of portable hangar, it was felt by certain officials of the Institution that Capt. Lamplugh of the British Aviation Insurance Group would be the person best fitted to preside at this particular meeting. It is understood however that Capt. Lamplugh expressed the opinion that sheds containing insured aircraft should on no account be either portable or collapsible and declined to act as the chairman on this occasion.

THE INSPECTION OF AIRCRAFT.

On Friday, Mar. 25, Major Horace Myers, Inspector of Stores at the Air Ministry, is to read a paper before the Institution of Engineering Inspection entitled "The Educative Influence of Aircraft Inspection." The meeting will be held at the rooms of the Royal Society of Arts, John Street, Adelphi, at 7.30 p.m.

The Institution will welcome visitors interested in the subject of this meeting, and invites those who wish to do so to join in the discussion.

THE INSTITUTION OF AERONAUTICAL ENGINEERS.

The following fixtures of the Institution of Aeronautical Engineers should be noted:—

(1) On Mar. 22 a paper will be read by Mr. Lawrence A. Wingfield on "Aircraft Law." Mr. Wingfield has made a special study of this subject and has prepared a very comprehensive paper. So far as can be learned no such paper has been read before.

(2) The Annual General Meeting will be held on Mar. 2 in the Council Room of the Society of Motor Manufacturers and Traders, 83, Pall Mall, when Lieut.-Col. J. T. C. Moore Brabazon, M.C., M.P., will preside, and the Amalgamation proposals will be discussed.

(3) The Institution will hold a Dinner at the Savoy Hotel on Mar. 31 at 7.30 p.m. when Sir Charles Cheers Wakefield Bart., C.M.G., will preside and the Wakefield Medal will be presented to Mr. M. L. Bramson and the Council Medal will be presented to Flt. Lt. Reid. Tickets will be £2 2s., which will include cocktails, champagne, cigars, etc. The Secretary of State, the Air Council, and distinguished personages in the Aircraft Industry have been invited, as well as various friends of Sir Charles Wakefield.

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I am glad to be able to confirm that we have cause for nothing but satisfaction in the service rendered us by CASTROL; our Hispano engine having a constant circulation system engine having a constant circulation system I can assure you that the oil reservoirs were not once refilled, so that the same oil served the whole journey, and that after 106 hours of use your oil retained its viscosity and its admirable lubricating powers.

We shall be happy to furnish you with any information which might be of interest to you, and with photographs should you so desire.

Believe me to be,

Yours faithfully,

(Signed) D. COSTE.

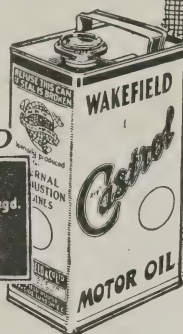
Appreciation

As an Aircraft user, this letter should interest you. It will be remembered that on October 28th, 1926, M. D. Coste and Capt. Rignot broke the World's non-stop flight record by reaching Jask, 3,390 miles from Le Bourget, in 32 hours, afterwards flying on to Calcutta. Returning to Le Bourget, 12,420 miles in all were covered in 106 hours flying time.

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THE SECOND I.A.E. HOUSE DINNER.

An adverse fate did its best to interfere with the success of the second House Dinner of the Institution of Aeronautical Engineers which was held on Friday, Mar. 10, at the Engineers' Club.

The President of the Institution, Col. J. T. C. Moore-Brabazon M.C., M.P., who was to have taken the chair, and Mr. F. Courtney, who was to have opened a discussion on the Auto-Giro, were both unable to attend.

Mr. L. A. Wingfield and Mr. L. M. Bramson however filled the places thus left open, and the latter was able to improvise a very interesting address which centred round the subject of the Savary Bramson Anti-Stall Gear, and led to a discussion of a somewhat discursive but eminently friendly and informal nature.

Mr. Bramson outlined briefly the reasons which led him to the design of the anti-stall gear, reasons which are fairly well-known and indubitably sound.

In the subsequent discussion the only objection raised to the anti-stall gear was based on the fact that it was one more gadget, and that gadgets should be made unnecessary by care in design. On the other hand the more general view that gadgets were unfortunately necessary and that the anti-stall gear was among the least objectionable and most useful of its kind was very evident.

MORTGAGES AND CHARGES.

CIRRUS AERO-ENGINES LTD.—Particulars filed of £8,600 debentures authorised Feb. 21, 1927, charged on the Company's undertaking of a property, present and future, including uncalled capital (ranking next after a certain mortgage or charge, if created), the amount of the present issue being £8,460.

PERSONAL NOTICES.

DEATHS.

DOBBS.—On Mar. 11, at Hendon, as the result of an accident while balloon-jumping, L-AC. E. A. Dobbs, R.A.F.

L-AC. Dobbs was a keen and experienced member of the parachute section at the Home Aircraft Depot, Henlow, and had made a great number of live drops. He was on leave and experimenting with balloon-jumping when he fouled some high-voltage overhead conductors carrying electric power, and was killed.

He began his parachuting, while still rated as a "boy" at the end of the War 1914-18. In the days of the later war-time airships he did a great deal of parachuting, and it was his custom to accompany the late Air Commodore Maitland, acting as his servant and descending by parachute in charge of that officer's baggage, when they made cross-country journeys by airship, and stepped off when passing over places where they wished to alight.

EAST.—On Mar. 9, at Biggin Hill, as the result of a parachute accident, Cpl. Arthur East, A.F.M., R.A.F.

MEADEN.—On Mar. 12, at Peshawar, as the result of a flying accident, L-AC. William James Meaden, R.A.F.

RIGG.—On Mar. 12, at Peshawar, as the result of a flying accident, Robert Owen Rigg, Flg. Off. (hon. Flt. Lt.), No. 60 (Bombing) Sqdn. R.A.F.

Mr. Rigg entered the R.A.F. in April, 1923, and was posted to No. 100 Sqdn. for a course of instruction. In March, 1924, he was posted to the R.A.F. Base, Leuchars, and in May of the same year to No. 1 (Fleet Reconnaissance) Flight with the honorary rank of Flt. Lt. In November, 1924, he returned to Leuchars and in March, 1925, was posted to No. 60 Sqdn., at Kohat, India, for Air Armament Duties.

SEXTON.—On Mar. 12, at Peshawar, as the result of a flying accident, L-AC. Patrick John Sexton, R.A.F. son of Engineer-Lieut. James Sexton, R.N. (retired), of Haulbowline.

WALKER.—On Mar. 10, at "Bricklands," Alverstoke, Hampshire, flying accident, John Matthew Walker, Flg. Off., Reserve of Air Force Officers.

Mr. Walker was a son of the late Mr. I. G. Walker, of Glasgow. He served with distinction in the R.A.F. during the War 1914-18 and was transferred to the Reserve in December, 1924.

MARRIAGES.

BLACKMORE—WILSON-SAUNDERS.—On Mar. 12, in London, James Blackmore, R.A.F., only son of Mr. and Mrs. Frederick William Blackmore, of Forest Hill, S.E., to Marjorie Vivienne Wilson-Saunders, youngest daughter of Mrs. and the late Joshua Wilson-Saunders, Brook House, Wimesham, Suffolk, niece of Admiral Sir Edmund John Warre Slade, K.C.I.E., K.C.V.O., and Lady Slade.

WETTERN—HEMMING.—On Mar. 10, at Christ Church, Westminster, Herbert Lawrence Wettren, of St. Stephen's House, Westminster, a Oxted Place, Surrey, to Dorothy May, widow of Flt. Lt. Geoffrey William Hemming, D.S.C., R.A.F., and daughter of Mr. and Mrs. R. Woods, of Princetown Lodge, Bangor, Co. Down.

FORTHCOMING MARRIAGES.

DEARLOVE—GARRATT.—The engagement is announced between Flt. Lt. Cuthbert J. S. Dearlove, R.A.F., son of Mr. and Mrs. G. Dearlove, of Cardiff, and Christine, only daughter of Mr. and Mrs. F. J. Garratt, of Horris Bank, Newbury.

LINDUP—KEFFELL.—An engagement is announced between Flt. Lt. Charles Arthur Lindup, R.A.F. Medical Service, elder son of the late Mr. Arthur Edward Lindup, and of Mrs. William Freeman of Avonbank, Sutton, Surrey, and Gladys, daughter of the late Mr. Raymond Keffell and Mrs. Keffell, of Wraysbury, Bucks.

MOVES—PHILIPSON.—The marriage arranged between Mr. Eustace Moyes and Miss Vera Philipson will take place at 11.45 a.m. on Mar. 30 at St. Peter's, Eaton Square. There will be no reception but friends will be welcome at the church.

BIRTHS.

BRAMSON.—On Mar. 6, at 9a, High Street, Hampstead, to Elsie, wife of M. L. Bramson—a son.

ROCK DE BESOMBES.—On Mar. 2, at Sealand, to Jeanne (née d'Aigneaux), wife of Flt. Lt. Ivan Rock de Besombes, R.A.F.—a son.

WALKER.—On Mar. 10, at "Bricklands," Alverstoke, Hampshire, Dorothea (née McCully), wife of Flt. Lt. F. W. Walker, D.S.C., A.F.C., R.A.F.—a son.

THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

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SIXPENCE WEEKLY.

[Registered at the G.P.O.
as a Newspaper]

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(Pliny.)



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ON DELUSIONS.

This person "Neon" is about the best thing that has happened for Aviation for a very long time. All the daily papers have been so busy reviewing and writing leaders about, and publishing chit-chat paragraphs on, and otherwise booming that amusing book *The Great Delusion*, as if they were one of the epoch-making works of the century, that quite a lot of people must have been forced to think about aircraft for the first time.

One would give a great deal to know what is the joke behind it all. But, whatever is behind it, the fact remains that it has made people talk about aviation as they never talked about it before. And it has made people who are always talking about aviation talk about it in a different way.

One paper, which generally is very much on the inside of those comic things which go to make up what are generally called "Society paragraphs," says definitely that the book was written by a woman. In the face of such an assertion one hesitates to say definitely that the author is a man. Nevertheless, there is nothing about the style of the writing which seems at all feminine.

The author's intimate knowledge of pretty well all that has been said and written during the last few years about air affairs seems to be wider and deeper than any woman could be likely to acquire during that period. And there is a curious cattness about the method of applying some of the arguments which is essentially masculine—for the theory that cattness is a feminine characteristic is another of the great delusions.

If the book had not been so terrifically boomed by the press one would not have bothered about it in *THE AEROPLANE* beyond treating it to a review in the space which could have been its due on its merits. But because of the publicity which has been given to it one feels more or less bound to deal with it as being the most important happening of the past week—far more so than the Debate on the Air Estimates, which had to do with a mere £15,000,000 of the taxpayer's money.

The review of the book, written by the Technical Editor of *THE AEROPLANE*, Captain W. H. Sayers, which, would have been published in the ordinary way, reads as follows:—

[*The Great Delusion*, by "Neon." With a preface by A. H. Pollen. London, Ernest Benn, Ltd. 288 plus xxxix pages, 12s. 6d. net.] "Neon" is a rare gas, normally inert, but capable when excited of emitting a fierce red radiation. In choosing "Neon" as a nom-

de-plume the author of *The Great Delusion* has displayed some sense of fitness.

Whether "Neon" is normally inert one has no means of judging. But aeronautical excitement undoubtedly provokes from him a fierce verbal radiation, very uniformly coloured with a distinct tendency to "red-ness." Moreover he displays in his book a diligence in collecting and screening references and quotations to serve his purpose which is fortunately rare.

According to "Neon," the "Great Delusion" of the present day is the idea that aircraft of any type are now or are ever likely to be of any real military or commercial utility, and that the expenditure of public funds on the maintenance of an Air Ministry and a Royal Air Force is either necessary or expedient.

To prove his case he purports to show that aircraft are so much at the mercy of the winds that they can never by any chance operate with regularity or even be relied upon with reasonable certainty to reach their destination, that their navigation with any degree of accuracy is physically impossible, that those who are responsible for the design and operation of aircraft—military and civil—have not yet grasped the A.B.C. of their business, that the experiment and research of the past few years have not led to any real improvement in aircraft, and much more to the same effect.

And that his case may be adequately convincing he builds his arguments almost entirely upon quotations taken from the public or semi-public utterances of a large number of individuals who are known to hold opinions precisely opposite to those expressed by "Neon."

The present stage in the development of aeronautics has been reached only by overcoming a large number of very serious difficulties. Many more difficulties still remain to be overcome. The success—such as it is—that has attended the efforts of aeronautical workers, past and present, has been very largely due to the fact that they have recognised and have openly and frankly discussed those difficulties.

That being the case anyone who, like "Neon," will take the trouble to search through the aeronautical literature of the World for evidence of these difficulties needs only patience to produce a very large amount of evidence which, suitably divorced from its context, may be used to produce in the uninformed mind an idea of the complete futility of all aeronautical enterprise.

Such is "Neon's" method. Its weakness is very adequately stated in a passage from "The Art of Chess" by Mason which the author quotes just before his own foreword. This quotation reads:—"When we go to decide upon a subject without troubling to really examine what it is, then at best we only inform ourselves of what is said about it; and one's judgment of it will be founded on nothing more than a sort of pretence or imagination not reflected by the facts. If there is error in the reports we rely upon, then that error becomes our own..."

Whether there be error in the reports on which "Neon" has



NO DELUSIONS.—Mr. Bert Hinkler and the Avro Avian (Cirrus engine) on which he proposes to fly to Australia, having no delusions about the difficulty of the job, but full of confidence in his machine, his engine, and himself.

relied, or whether the errors be his own, it is certain that anyone who assumes that this book with its copious quotations from and references to various known and otherwise writers and talkers on aeronautical subjects as a fair and accurate statement of facts will be grievously misled.

Internal evidence shows that the writer has had access to and has availed himself of a vast amount of documentary evidence bearing on aviation. His statements on points of fact are so amazingly inaccurate in some instances as to make it clear that he at any rate has decided upon this subject "without troubling to really examine what it is."

One or two examples of his methods may serve to indicate the value of the book. Referring to the Air Ministry's new rigid airship R.101 he says:—"It is proposed to install five engines of 600 h.p. of the Diesel or Semi-Diesel type. . . . Petrol engines of the same power would weigh over 2½ tons—Diesel engines incomparably more." And a footnote refers the reader to a statement on another page where it is said that "a weight of 120 lbs. per brake horse-power would not be considered heavy for a reliable type of Diesel commercial engine."

This statement as to the weight of a Diesel engine is given as a quotation from an article in *The Engineer* by Mr. B. N. Wallis, B.Sc., on "Some Technical Aspects of the Commercial Airship," thus giving the uninformed reader the impression that this weight referred to an aircraft engine. It is an open secret that a Diesel aircraft engine of under 5 lbs. per h.p. has been running on test during the past year or more and "Neon's" own references show that he must have had the opportunity of becoming aware of the fact.

In another place he states that the "Nimbus" engine of A.D.C. Aircraft Ltd. is "the old war Siddeley Puma engine reconditioned for service," and adduces the fact that this engine "is advertised as being the lightest engine per h.p. of its type" to show that no real, technical progress has been made in recent years. Which is untrue.

A third characteristic passage taken at its face value suggests that the Canadian Government has completely abandoned both fishery protection and forest fire-patrols as being useless and unsatisfactory. It is scarcely necessary here to point out how far from the truth is this suggestion.

Why any person should have taken so much time and trouble not only to delude himself, but to try and foist his "Great Delusion" on the public at large is perhaps partly explained by the last chapter of this really remarkable work. This chapter, entitled "Aircraft and Oil Fuel," has less to do with aircraft than with oil fuel. It reveals the author as passionately antagonistic to any avoidable British use of oil fuel, even of oil fuel derived from British coal.

And it would seem that realising that aircraft must use oil fuel, and hating oil fuel with at least some trace of fanaticism, he has decided that aircraft must be suppressed in order that the oil trade may lose one at least of its excuses for continued existence.

To those who have any real acquaintance with the facts of aviation as it is to-day the book will prove as amusing as, say, Dr. Lardner's

demonstration that no steamship could possibly cross the Atlantic Ocean must have been to the crew of the steamship which had accomplished that task before that demonstration was published.

Unfortunately it is likely to be taken more seriously by certain unintelligent or mischievous sections of the politically minded public, and it may do a considerable amount of harm.

WHAT IS THE TRUTH ABOUT "NEON"?

If one took the book seriously, as most writers have done, and treated it as a genuine attack on aircraft, one would say that it is about the silliest, though not the feeblest, thing of its kind that could be produced. One can scarcely imagine an experienced publishing firm like Ernest Benn Ltd. going to the expense of producing such a vast volume and putting it on the market and expecting to sell it at 12s. 6d. One feels that there must be something more behind it.

Every argument in the book can be quite easily upset by anybody who knows anything about aircraft or air politics or international politics or war. And yet those same futile arguments are of just the kind which people behind the scenes of aviation would dig up if they were arguing for the sake of arguing, without the hope of really convincing their hearers (or readers), but with the intention of making them think. Therefore one has come to the belief, purely as a personal opinion, that the whole book is either a colossal joke or an almost diabolically clever piece of aircraft propaganda.

You see, the use of aircraft has come to be accepted so much as a matter of course of late years that nobody has thought about the abuse of aircraft. So to start in and abuse aircraft was bound to catch the attention of the Public and its press.

As one has pointed out over and over again in *THE AEROPLANE*, if you leave an Englishman alone to do a job of work he is apt to become lazy and contented and self-satisfied. The result is that his rate of progress becomes slower and slower till he arrives almost at a standstill. But if you tell him that he is a fool or a knave, or that he is utterly incompetent, or that he cannot do the thing that he is supposed to be doing, or cannot make the thing that he is supposed to be making, then he wakes up and proceeds to show you, at some considerable inconvenience to himself, that when he is out to do it he is the most amazingly competent and successful person in the world.

Now that is just about what Neon has done. Neon says that our aircraft cannot do and never can do the things which we who are on the inside of the aircraft business



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know perfectly well that they can do if they are properly designed and properly constructed and properly used. Neon tells us that the Air Force cannot do a great many things which we all know that it could do if put to it. Neon tells us that airships never will be able to do the very things which we know that they will do when the two experimental ships at present abounding have overcome their experimental troubles. Neon tells us that Civil Aviation does not pay, which we all know, and that it never can pay, which we also know to be true until such time as sheer necessity, which is the mother of invention, forces us to produce aeroplanes and engines which can pay their own way.

In fact, by the time Neon has been proved to be a liar on all points, as will happen some day, aircraft and air navigation will have become everything that we know that they can become if we only wake up and set to work the right way. And, thanks to Neon, the time may be shortened, more or less.

So much is true, considering Neon as a critic and considering the effect of his criticisms on the Aircraft Industry, the Royal Air Force, and the people who have to do with Civil Aviation. But there is another side to Neon's usefulness, which is probably just as important. That is the effect of the book on the General Public.

HOW THE PUBLIC WILL TAKE IT.

Hitherto, as one has said, aircraft have been merely accepted as a fact, or a necessary evil, or an embryo method of transport. The Public have been told by energetic propagandists, during the War and since, that aircraft do or can do this, that, and the other thing. And they have accepted what they have been told as facts, very much as they accept what they read in The Bible, without in the least troubling to analyse what all the statements mean.

People see aircraft flying about, generally at a considerable distance, people read about aeroplane crashes and airship accidents, but, in spite of the terrific and badly-paid energy of our joy-ride operators, actual flying is pretty nearly as much outside the immediate experience of the bulk of the population of this country as are the miracles of The Bible (Old and New Testament). So aircraft are regarded with the eye of faith rather than as personal affairs.

How extraordinarily little interest people take in aircraft is shown by the fact that whenever there is a debate on the Air Estimates in the House of Commons, everybody gets up and goes out except the people who want to speak. And if the People's Representatives are so little interested, it is only natural that the People themselves should not be interested.

But, supposing the People of this country were really interested in aircraft, then their representatives in Parliament would equally have to be interested. The result would be that everybody would have opinions on the subject, and air debates, instead of going by default, would develop into heated arguments.

Actually there is enough material in the Air Estimates to provide a really fierce debate for a week, simply on points of maladministration in Service and Civil Aviation, and on arguments as to the forms of organisation in the Air Force, and different types of aeroplanes and engines which are being used, both in Service and Civil Aviation. But as it is a whole day that is set aside for an air debate is wasted by long and dull dissertations on disarmament.

TOWARDS AIRMINDEDNESS.

A book which has been boomed by the whole of the Press as Neon's book has been boomed, must be read by hundreds of thousands of people, even if they only steal copies from friends or borrow them from libraries. Consequently, as the book is entirely anti-aircraft, and about as little harmful in fact as was anti-aircraft gunnery during the War, consisting as it did mostly of noise and hot gas, its effect must be to produce a certain body of public opinion which is either actually hostile to the uses of aircraft or is convinced that everything to do with aircraft is wrong and must be put right—which latter point of view has a great deal to recommend it. And even an anti-aircraft mind is an air mind of sorts.

That is precisely what is most needed for the good of progress in aircraft at the present moment. We badly need some solid opposition to liven up the self-complacent attitude of almost all the people who hold the highest places

in the construction and use of aircraft in the British Empire. If they do not liven up we shall find the Americans capturing the aircraft trade of the World, and we shall find our Air Force becoming equipped with beautifully made aeroplanes of entirely obsolete designs.

If only enough people can be induced to read Neon's book it will do an immense amount of good to British Aviation. The only thing one fears is that there are such solid masses of alleged facts and pseudo-statistics in it that most of the people who try to read it will be seized with violent attacks of mental indigestion in the first forty or fifty pages, more particularly because Neon has made the mistake of devoting the first part of the book to airships, about which the average citizen of this Empire knows and cares considerably less than he or she does about aeroplanes. This is an error of strategy rather than of tactics. But it is pity that Neon has made such an error.

Nevertheless one does believe that the book will do an immense amount of good for aircraft.

WHO IS NEON?

Naturally, everybody would like to know exactly who Neon is. He, for one refuses to believe that he is a she, evidently a person of immense industry, who has not only an ability but an actual affection for handling figures. Also he is evidently right on the inside of the aircraft business because even his mistakes, which are quite conceivable, are made on points or on subjects which would be away outside the ken of any ordinary person who has merely developed an anti-aircraft complex and devoted himself to digging up ancient history. An outsider does not quote such out-of-the-way things as the Hearings before the Morrow Commission in the States or odd phrases from aviation papers. He must be on the inside of air affairs.

Therefore one is convinced personally that Neon must be "one of us," and must have written the book either because he has a very high sense of duty or because he has an outrageous sense of humour. Or at any rate the book has been written from material supplied and on lines suggested by one, or perhaps some, of us.

Personally one has a grievance against him. He quotes a singularly striking passage from a leading article in THE AEROPLANE and adds a footnote—"Printed in a British paper in 1923 and quoted in a standard work. The author prefers not to give the precise reference."

Seeing that he has given all his references, including several aviation papers, all the rest of the way through the book, he might at least have given THE AEROPLANE that of free advertisement. Also, though he has evidently read THE AEROPLANE right back to 1923, and must have seen many ruder things in it than anything he has said himself, he carefully refrains from quoting this paper anywhere else. So evidently although he is a friend of aviation, he must be one of THE AEROPLANE's many enemies. One feels distinctly peevisish with him about this.

Or perhaps, being so clever, he hopes in this way to induce people to believe that "Neon" is the industrious staff of THE AEROPLANE, and so to disguise his own identity. As matter of fact, if one had thought of the idea one would have liked to have done something like *The Great Delusion* oneself, if one had had the time, and the patience, and the industry, which one has not, though one fears that a distorted sense of humour would have given the game away. One could never have maintained that solemn fury which makes Neon's book such heavy reading. A little light irreverence would have been a great relief.

Anyhow, one has the consolation that Mr. J. L. Garvin, reviewing and refuting Neon in *The Observer* last Sunday with a deadly seriousness equal to his own, does quote *All the World's Aircraft* as the authority for one of his most solemn knock-out blows at Neon. And after all perhaps *The Observer* is a better advertising medium than *The Aeroplane* book.

One cordially recommends all readers of THE AEROPLANE to read Neon. But one entreats one's readers to take the book in its true light as a huge joke and not to get "up" by him. At the same time, as thousands of people take it quite seriously, it will be just as well for the readers of this paper to inform themselves on the various points raised by Neon so that they can enlighten their friends who do take Neon as an authority on matters of fact. And finding the right answers will be good for their own education too.—C. G. G.

ON MORE DELUSIONS.

yet realises that there is no use in preaching Christian principles to the Tartar Jews and Pagans who run Russia and that there is no use in preaching economics to Eastern barbarians whose ideas are destructive, and that there is no use in preaching humanism to people who govern with the aid of Chinese torturers. If we are dealing solely with Western European people, either Nordics or Mediterraneans, we might be able to disarm by mutual agreement. But neither idealism nor commercialism is a sound argument for longhead to use in dealing with a squarehead who only understands guile and force.

CAPT. CONTINGHAM REID (Cons., Warrington), who has been a

The Report Stage of the Air Estimates was taken on Mar. 17 and produced a long talk to the extent of about eighty columns of Hansard.

MR. POMSONBY (Lab., Brightside, Sheffield), introducing an Amendment, to reduce the Air Force to 1,000 men (the equivalent to abolition), made a really good speech in favour of disarmament on humanitarian and economic grounds. MR. SHEPHERD (Lab., Darlington) seconded the amendment in a sincere and well-worded speech on religious grounds.

One has every sympathy with the arguments of these two members. They would be perfectly sound but for the fact that neither of them

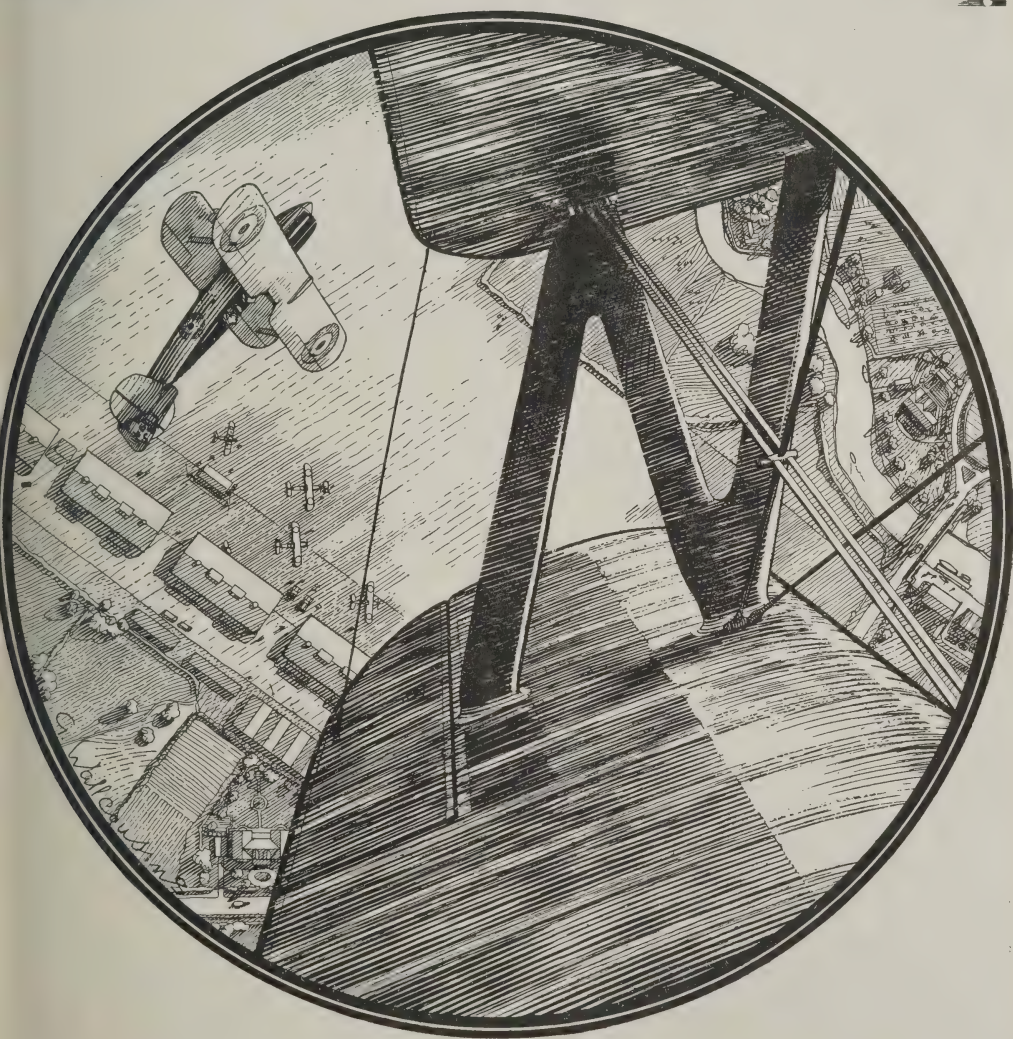
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

advertised lately as being about to wed the second richest young woman in England, spoke jauntily in favour of doubling the Air Force and deducting the cost from the other two Services. He also related how during the War he had twice flown from England to France and back without leave and unnoticed, which only shows what an undisciplined young cub he must have been before he became a respectable member of Parliament, and how extraordinarily slack his Commanding Officer must have been.

MR. SIXTON (Lab., St. Helens) said that it would be inhuman to leave our population at the mercy of any enemy aircraft which might raid this country. He said that Russia had a standing army of 650,000 men with 8,000,000 men in reserve, and that if we disarmed and war broke out again, it would not be Russia for the Russians, but England for anybody who would like to attack it. How true!

LIEUT.-COMM. BURNEY (Cons., Uxbridge) made a sound speech on the uses of airships and on air power generally, rather marred by the fact that he suggested saving money out of the R.A.F. to spend on Civil Aviation.

MR. SHERBOURNE (Independent, Dundee), famous for having defeated Mr. Churchill at Dundee years ago, made another quite sincere speech in favour of disarmament, as usual forgetting the ethnological arguments in favour of armament. But, strangely enough, he lamented that Germany was "shooting ahead of all the Nations in this matter of commercial aviation," apparently forgetting that commercial competition is only another form of war and that if we are to be logical we ought to let other people take our foreign trade and all our foreign possessions without protest. It is quite as possible to bring a nation to a state of starvation by beating it in trade as it is by beating it in war, and a commercial blockade may be just as bad as a Naval blockade.

MR. DUFF COOPER (Cons., Oldham), the husband of Lady Diana Manners that was, advised setting a good example to other Powers by reducing our expenditure on armament. He said that if we were going to have armaments at all let them be cheap and deadly, and let us criticise such armaments as make wars long and costly. On the subject of the League of Nations, he said that people were under the impression that it was a fad of the highbrows and the intelligentsia, for which reason people said, "Look at the sort of people who support it," and he believed that the support of such people did more harm than good.

MR. JOHNSTON (Lab., Dundee) asked what was the good of spending £120,000,000 per annum on defending a social order in which more than 1,000,000 of our fellow-citizens could get no employment. Perhaps Mr. Johnston would prefer an undefended country which could not be invaded by anybody who had an armed force, so that the population could be reduced to reasonable figures by the simple process of massacre.

SIR SAMUEL HOARE replied quite adequately.

BRIG.-GEN. WARNER (Cons., Bedford), who was in charge of R.F.C., and later R.A.F., personnel at the old Hotel Bolo, made a very good speech in favour of a strong Air Force, which he said was the best step we could take towards aerial disarmament, for, said he, if we have a strong Home Defence force, then other nations in proximity to these Islands will stop building in competition to us.

He complained very rightly that Reserve or Auxiliary Squadrons should not be counted as yet as effective Home Defence Squadrons. And so he reduced Sir Samuel Hoare's 28 squadrons to a mere 23 out of the 52 promised.

He suggested that, as a sequel to his good work with the Imperial

Conference, Sir Samuel Hoare ought to call together at once the Aircraft Manufacturers of this country and arrange with them to establish agencies throughout our Dominions, to subsidise them if necessary, and to send out pilots and demonstration machines, because if we did not we should find the Americans first in the field, and we should never catch them up. That is a more drastic proposal than even THE AEROPLANE has made.

MR. GRAHAM (Lab., Lanark) talked about servants of the Air Ministry holding positions in public companies.

VISCOUNT SANDON (Cons., Shrewsbury) argued that instead of doing long flights it would be better to organise proper air lines throughout the Empire with properly lighted routes for night flying and proper relays of pilots and machines. Also a sound idea.

MR. DENNISON (Lab., King's Norton) asked questions about R.100 and R.101 and wanted to know whether we were ordering gas-bags for these airships from the Zeppelin Company when we had the best equipped factory in this country standing idle at Cardington.

MR. WELLS (Cons., Bedford) also wanted to know about the airships and about mooring masts.

MR. GILLET (Lab., Finsbury), as usual, wanted to know why we ordered aeroplanes from aircraft manufacturers instead of putting out the designs for open tender and accepting the lowest. Presumably Mr. Gillett would not expect to be asked to fly in aircraft so obtained.

CAPT. FAIRFAX (Cons., Norwich) pleaded for a subsidy for the Norfolk and Norwich Aero Club.

LIEUT.-COMM. BURNEY explained that the gas-bags for the new airship were ordered in Germany on his advice owing to technical difficulties about their construction in this country, in fixing gold beaters' skin to fabric.

MAJOR DAVIES (Cons., Yeovil) said that manufacturers of aircraft who were constantly experimenting with new designs ought to be given orders to keep their works going.

SIR SAMUEL HOARE again explained satisfactorily all the actions of the Air Ministry.

MR. ROSE (Lab., Aberdeen) was unintentionally funny about the airships and protested against "sending two hundred of His Majesty's soldiers into the Tropics on a gold-beaters' skin gas bladder." Apparently he does not like airships. MR. GROVES (Lab., Stratford) supported him.

CAPT. GARRO JONES (Lib., Hackney) again talked about "a type of craft in the U.S. which can be launched from the ground unmanned despatched on its mission for 35 miles and dropped within a quarter of a mile of its objective." He evidently forgets that such craft cannot protect themselves against attack by fighting aeroplanes, cannot manoeuvre to escape anti-aircraft fire from the ground and are liable to be shifted considerably out of their course by air currents.

MR. MAXTON (Lab., Bridgeton) said that all the arguments about expert advice on the subject of airships had been used years ago in favour of the expert advice which caused so much expenditure on a certain experimental helicopter (meaning the Brennan).

MR. AMMON (Lab., Camberwell) wanted to know what was the good of spending vast sums on airship sheds when we did not know whether the airships themselves would be any use. Perhaps Mr. Ammon will explain how an airship is going to be built without a shed to house it while building.

And so another £15,000,000 odd of our good money was voted, without a soul touching on any of the points which are the real key to our extravagance and inefficiency.

THE BOURNEMOUTH EASTER AIR RACE MEETING.

An air race meeting is to be held at the Emsbury Park Race-course, at Bournemouth, on April 15, 16 and 18. The prizes will amount to £400.

The events, under the Competition Rules of the Royal Aero Club, will be as follows:—

THE CHRISTCHURCH HANDICAP STAKES.—Open to any type of aeroplane owned by Flying Clubs. Entries must be made by the Club owning the aeroplanes and the Pilots must be members and have been entirely trained by the Clubs. Course approximately 20 miles. First Prize £30. Second Prize £10. Third Prize £5 if six or more starters.

THE "KILL-JOY" TROPHY AND STAKES £50.—(Private Owners' Handicap).—Open to any type of aeroplane privately owned and registered in the name of an individual. The definition of "privately owned" is at the sole discretion of the Royal Aero Club who reserve the right to refuse any entries. Open to all pilots not necessarily the owner of the aeroplane. Course approximately 20 miles. First Prize £40. Second Prize £10. Third Prize £5 if six or more starters.

THE ENSBURY PARK STAKES.—Low Power Handicap.—Open to any type of aeroplane the total piston displacement of the power plant of which does not exceed 1,500 c.c. Open to all pilots. Course approximately 10 miles. First Prize £20. Second Prize £10 if five or more starters.

THE BOURNEMOUTH AERIAL "OAKS" HANDICAP.—Open to any type of aeroplane. Open to Women Pilots only. Course approximately 10 miles. First Prize £20.

THE BOURNEMOUTH EASTER HIGH POWER HANDICAP.—Open to any type of aeroplane with engine of 100 h.p. or over. Open to all pilots. Course approximately 20 miles. First Prize £40. Second Prize £10. Third Prize £5 if six or more starters.

THE FOOLIE HANDICAP.—Open to any type of aeroplane entered by the owner who must also be the pilot. Course approximately 20 miles. First Prize £30. Second Prize £10. Third Prize £5 if six or more starters.

THE WINTON HANDICAP.—Flying Schools Handicap Race.—Open to any type of aeroplane entered by recognised Flying Schools or Clubs giving flying instruction. The pilot nominated by the School or Club must be employed as a Pilot Instructor. Course approximately 20 miles. First Prize £40. Second Prize £10. Third Prize £5 if six or more starters.

THE BRANKSOME "CIRRUS" HANDICAP STAKES.—Open to any type of aeroplane fitted with the Cirrus Engine Mark I or Mark II. Open

to all pilots. Course approximately 20 miles. First Prize £20. Second Prize £10 if five or more starters.

THE BOSCOMBE STAKES.—Flying Club Instructors' Scratch Race.—Open to Standard D.H. 9 Moths with Cirrus Mark I engine entered by a recognised Flying Club. Pilots must be pilot instructors employed by the Club. Course approximately 10 miles. First Prize £20.

THE HOLIDAY FINAL HANDICAP.—Open to any type of aeroplane by the Flying Club owning the aeroplanes.

£20. Second Prize £10 if four or more starters. Entries to be made Open to all pilots. Course approximately 20 miles. First Prize £30. Second Prize £10. Third Prize £5 if six or more starters.

THE BOURNEMOUTH AND DISTRICT BUSINESS HOUSES SWEEPSTAKE.—The Proprietors of certain Business Houses in Bournemouth and District wish to subscribe to a Handicap Sweepstake Race and are prepared to pay an entry fee of £10 each for an aeroplane to be entered in the name for this particular race. The Entry Fees so provided will be allocated as follows:—First, 35 per cent. to the Owner of the Aeroplane, 30 per cent. to the Business House entering. Second, 15 per cent. to the Owner of the Aeroplane, 10 per cent. to the Business House entering. The balance of 10 per cent. goes to the Racing Stakes. The aeroplanes will be allocated to the various Business Houses by the Royal Aero Club. It is expected that 10 or 12 entries will be received. Course approximately 20 miles. Owners of aeroplanes are requested to state whether they are prepared to allow their aeroplanes to race under these terms. No entry fee is required from the Owner of the Aeroplane.

THE BOURNEMOUTH HOTELS ASSOCIATION SWEEPSTAKE.—The Proprietors of certain Hotels in Bournemouth wish to subscribe to a Handicap Sweepstake Race and are prepared to pay an entry fee of £10 each for an aeroplane to be entered in their names for this particular race. The entry fees so provided will be allocated as follows:—First, 35 per cent. to the Owner of the Aeroplane, 30 per cent. to the Hotel entering. Second, 15 per cent. to the Owner of the Aeroplane, 10 per cent. to the Hotel entering. The balance of 10 per cent. goes to the Racing Stakes. The aeroplanes will be allocated to the various Hotels by the Royal Aero Club. It is expected that 10 or 12 entries will be received. Course approximately 20 miles. Owners of aeroplanes are requested to state if they are prepared to allow their aeroplanes to race under these terms. No entry fee is required from the Owner of the Aeroplane.

The Programme of Events for each day will be fixed after close entries. Entries close noon Thursday, Apr. 7, 1927. Entry Fee for each event 5s. Full particulars and Entry Forms can be obtained from the Royal Aero Club, 3, Clifford Street, London, W.1.

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THE ROYAL AIR FORCE.

The London Gazette.

Mar. 15.

GENERAL DUTIES BRANCH.—The following Plt. Offs. are promoted to the rank of Sq. Ldr.:—J. A. P. Harrison, T. H. Carr, J. G. D. Armour (Jan. 30); S. F. Prince, G. H. Walker, S. J. Gilbert, P. E. Grenfell (Feb. 18).

The following are seconded for duty with the British Naval Mission to Greece (Mar. 15):—Wing Cdr. C. H. K. Edmonds, D.S.O., O.B.E., Sq. Ldr. J. C. Brooke, D.S.C.

Flt. Off. W. F. A. Preston (Lt., R.A.) is seconded for a further year's duty with the R.A.F. (Mar. 14); Flt. Lt. A. W. Symington, M.C., is restored to full pay from half-pay (Mar. 14).

The following Flt. Offs. are transferred to the Reserve (Mar. 15):—CLASS A.—T. W. G. Cattell, B. L. Young. CLASS C.—E. G. Whinney. Sq. Ldr. D. Cloete, M.C., A.F.C., is placed on the retired list at his own request (Mar. 16); Flt. Off. I. O'B. MacGregor (Lt., R.A.) relinquishes his temp. comm. on return to Army duty (Mar. 14).

MEDICAL BRANCH.—A. L. St. A. McClosky is granted a S.S. comm. as a Flt. Off., for three years on the active list, with effect from and with seniority of Feb. 2, and is seconded for civil employment at the Princess Alice Memorial Hospital, Eastbourne, from that date to Mar. 1 inclusive. R. Thorpe is granted a S.S. comm. as a Flt. Off., for three years on the active list, with effect from and with seniority of Mar. 2. Flt. Lt. V. R. Smith is promoted to the rank of Sq. Ldr. (Mar. 12). Flt. Off. D. B. Smith, M.B., is promoted to the rank of Flt. Lt. (Mar. 19). Temp. Lt. P. M. Margand (General List, Army, Dental Surgeon) is granted a temp. comm. as a Flt. Off. on attachment to the R.A.F. (Mar. 1). He will continue to receive emoluments from Army sources.

RESERVE OF AIR FORCE OFFICERS.—The following relinquish their comms. on completion of service.—Flt. Lt.—E. Taylor, M.B.E. (Mar. 9). Flt. Offs.—H. A. V. Kirk, H. Marsden, F. H. Pidgeon, J. A. Shaw (Mar. 11). Flt. Off. C. E. Stuart relinquishes his comm. on account of ill-health, and is permitted to retain his rank (Mar. 16).

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—The following to be Plt. Off.:—No. 605 COUNTY OF WARWICK (BOMBING) SQUADRON.—J. F. C. Brinton (Mar. 15).

Appointments.

Week ending Mar. 21.

GENERAL DUTIES BRANCH.—Wing Commander C. H. B. Blount, O.B.E., M.C., to Air Ministry, Directorate of Operations and Intelligence, for Air Staff duties, 19/4.

Squadron Leader A. S. Maskell, to H.O., Iraq, 27/2.

Flight Lieutenants P. L. Luxmoore, D.F.C., to No. 1 Sqn., Tangmere, 21/3. E. G. Gibbons, D.F.C., to No. 9 Sqn., Duxford, 16/3. G. H. Martingell, A.F.C., to No. 502 Sqn., Aldergrove, 27/3.

Flying Officers: G. G. Mobbs, to No. 1 School of T.T. (Apprentices), Halton, 20/3. J. H. Woodin, to No. 47 Sqn., Egypt, 4/3. L. A. Eggesfield, to No. 208 Sqn., Egypt, 2/3.

Pilot Officer T. M. Abraham, to No. 2 F.T.S., Digby, 5/3.

MEDICAL BRANCH.—Flying Officers M. J. Marren, M.B., to Home Aircraft Depot, Henlow, 20/3. C. W. Coffey, to R.A.F. Station, Worthy Down, 4/5.

STORES BRANCH.—Flight Lieutenants T. J. Organ, to No. 4 Stores Depot, Ickenham, 14/3. G. Baker, to Station H.Q., Bircham Newton, 22/2.

The King's Levée.

His Majesty the King held a Levée at St. James's Palace on Mar. 15.

The following officers of the R.A.F. were presented to His Majesty by the Secretary of State for War:—

Baker, Sq. Ldr. Brian, D.S.O., M.C., A.F.C., on promotion; Brown, Wing Cdr. Vernon; Burton, Flt. Lt. Eric, on first appointment; Cochrane, Sq. Ldr. the Hon. Ralph, A.F.C., on promotion; Courtney, Grp. Capt. Christopher, C.B.E., D.S.O., on promotion; Desoer, Flt. Lt. Noel, on first appointment; Ludlow-Hewitt, Air Commodore Edgar, C.M.G., D.S.O., M.C., on promotion; Holt, Air Commodore Felton, C.M.G., D.S.O., on promotion; Longcroft, Air Vice-Marshal Charles, C.B., C.M.G., D.S.O., A.F.C., on appointment to command of Inland Area; Peck, Sq. Ldr. Richard, O.B.E.; Steele-Perkins, Wing Cdr. Alfred, O.B.E., on promotion; Pink, Grp. Capt. Richard, C.B.E., on promotion; Ross, Grp. Capt. Robert, D.S.O., A.F.C., A.D.C., on appointment as Air Aide-de-Camp to the King; Sanders, Flt. Lt. Arthur, on first appointment; Swann, Air Vice-Marshal Sir Oliver, K.C.B., C.B.E., on appointment as a Knight Commander of the Order of the Bath; Tucker, Sq. Ldr. Charles; Unwin, Wing Cdr. Frederick, O.B.E., on promotion; Walser, Flt. Lt. John, M.C., on first appointment.

Short Service Commissions.

The Air Ministry announces:—

A considerable number of short service commissions (for 5 years on the active list and 4 in the reserve) will be granted in July and the Air Ministry is prepared to consider applications now from candidates between 18 and 25 who wish to fly. Officers will be trained in this country or in Egypt and will subsequently be employed in units at home or in the Middle East, India, or other overseas commands of the R.A.F. The opportunity to see the world, to learn to fly and to master the technical side of air work should appeal to young men of spirit and especially to those who have a bent towards mechanical studies.

A year is spent in learning flying, aeronautical engineering and ancillary subjects and in their subsequent service officers receive every

encouragement to continue their studies by reading, correspondence courses provided and supervised by Air Force educational staff, and by practical work in squadron workshops. The officer who after five years' service in the Air Force reverts to civil life will, if he has taken advantage of the facilities provided for him, find himself well qualified to obtain civil employment. He will leave the service with a gratuity of £375 and will remain in the R.A.F. Reserve where he will keep up his flying.

Only a small number of short service officers can be retained on permanent commissions in the service, but every year a competition examination is held in mathematical and scientific subjects, and to officers who are recommended, have three years' service and under 25. Those successful are trained as specialists in aeronautical engineering, armament, wireless or photography, and are granted permanent commissions. Apart from this examination a small number of short service officers are selected for permanent commissions on the recommendation of their commanding officers.

Applications for forms and regulations should be addressed in writing without delay to the Secretary, Air Ministry, Admiralty House, Kingsway, W.C.2. Candidates should have received whole time education at least up to the age of 16 and possess good physique and eyesight.

Candidates selected will be appointed to commissions as Pilot Officers on probation at a rate of pay of 15s. a day and will either be provided with accommodation, rations and personal attendance in kind or will cash allowances in lieu amounting at present home rates to about 8s. a day. After 18 months' service they will normally attain the rank of Flying Officer, the present pay of which is 18s. 10d. a day on promotion and 21s. 8d. a day after two years' service in the rank.

A Fatal Accident.

The Air Ministry regrets to announce that as the result of an accident at Elham, Kent, to a Hawker Horsley machine of No. 11 Squadron, Netheravon, on Mar. 18, Plt. O. Frederick Priestman, the pilot of the aircraft, and No. 359457 L.A.C. William John Pickering, were killed.

At the inquest at Hawkinge, on Mar. 19, Flt. Lt. W. H. Yool said that three machines left Netheravon on a cross-country flight at 10.30 on the morning of the accident. They ran into a bank of mist near Lympe. He thought that Mr. Priestman had lost his way in the mist and probably became confused and lost control of the machine near the ground. The Coroner asked the witness if he could suggest any means of preventing the risk of fire after a crash and he replied "with the engine and fuel now in use I should say no."

The Coroner said that the majority of crashes in the Air Force were due to error of judgment and not to defective machines. I thought it a pity that the flight was undertaken in spite of the report from Hawkinge that visibility was nil.

The Gordon-Shephard Memorial Essay Prize.

The Gordon-Shephard Memorial Prizes, which are given annually for the best essays submitted by members of the R.A.F., on subjects selected by the Air Council have been awarded as follows in the 1926 competition:—

First prize: Sq. Ldr. J. L. Vachell, M.C., Director Organisation and Staff Duties, the Air Ministry.

Second prize: Sq. Ldr. A. A. B. Thomson, M.C., A.F.C., Armament and Gunnery School, R.A.F., Eastchurch.

The competition was established as a memorial to the late Brig.-Gen. G. S. Shephard, D.S.O., M.C., R.A.F.

The Naval Mission to Greece.

The following officers of the R.A.F. are seconded for duty with the British Naval Mission to Greece as from Mar. 1927. Wing Cdr. C. H. K. Edmonds, D.S.O., O.B.E., and Sq. Ldr. J. C. Brooke, D.S.C.

Wing Cdr. Edmonds has been in command of the Armament and Gunnery School, R.A.F., Eastchurch, since May, 1926. Sq. Ldr. Brooke has been stationed at the Marine Air Experimental Establishment, Felixstowe, since August, 1926.

The Mission will be under the command of Captain C. Turle, D.S.O., R.N.

The Fleet Air Arm.

The Times of March 22 states:—

The Admiralty announce that the following ratings have been selected to undergo the next qualifying course for telegraphist gunner:—

A. H. Thorowgood (Ceres), G. R. Scott, A. A. Watts (Pembroke), S. Denovan (Defence), W. T. Brachbridge (Vivid), R. A. Quinn (C. T. Williams (Ramillies), R. Urquhart (Revenge), and S. Jackson (Vivid).

These men will join the armament and gunnery school of R.A.F. at Eastchurch on Monday, May 2, and the R.A.F. base Gosport on Monday, June 20. Instruction in gunnery will conclude on June 17 and in wireless telegraphy on Aug. 12.

A Service Tour.

Arrangements are being made for a Flight of Service bombers to go on a tour of some of the big towns in England during April. The Flight will fly in formation and will probably land to be inspected by the public at the following places, on or about the dates given:—Birmingham, Apr. 1; Manchester, Apr. 20; Leeds, Apr. 27; Liverpool, Apr. 28; Bristol, Apr. 23; Nottingham, Apr. 25.

Full particulars will be announced by the Air Ministry at a later date.



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Activity at Sealand.

The voice of rumour leads one to the conclusion that a stupendous outburst of activity will shake the R.A.F. Station at Sealand on or about Mar. 25. There is no official confirmation on the subject, but one gathers that at the end of this week Sealand will be the scene of Service Cruises, Courts of Inquiry, Canteen Inspection Boards, Promotion Examinations, Investigation Committees (various), Audit Boards, Courts Martial, and possibly a visit from the Vermin Extermination Board. This last, it should be explained, is the official name for the Air Ministry Ratting Party.

The following entry appears in the R.A.F. diary for Mar. 25,—"Fri. Lady Day. Grand National." Aintree may be reached from Sealand in about an hour by surface and subterranean transport.

Aintree.

Air Ministry Notice to Airmen No. 20 of 1927 states:—"The attention of all pilots is again drawn to the fact that the Aintree Aerodrome (Liverpool), which was formerly occupied by A.D.C. Aircraft Ltd., is no longer available for use by aircraft."

It is dangerous for aircraft to attempt to land on the site owing to the extensive building works which are in progress, and the owners of the ground decline to give permission for its use as a landing place.

No. 46 Squadron Annual Dinner.

No. 46 Squadron, R.F.C. and R.A.F., are holding their Tenth Annual Dinner at the Blenheim Rooms, Hotel Cecil, at 7 o'clock for 7.30 on Boat Race Night, April 2. Each member of the Squadron may bring one guest. Dinner jackets will be worn.

Application for tickets (25s. each, including wines) should be made to C. J. Marchant, 10, Bush Lane, Cannon Street, E.C.4. Any member who does not live in London and would like a room booked at the Cecil should notify Mr. Marchant, who has arranged for special terms.

No. 28 Squadron Old Boys' Association.

The half-yearly meeting of No. 28 Squadron Old Boys' Association will take place at Slater's Restaurant, 34, High Holborn, on Apr. 2, at 6.30 for 7 o'clock.

Tickets (3s. single and 5s. 6d. double) may be obtained from the hon. secretary, C. T. Hodges, 102, Camden Street, N.W.1.

R.A.F. SPORTS AND PASTIMES.

The Rugby Cup Final.

No. 58 (Bombing) Squadron v. Felixstowe:—The final match in the R.A.F. Rugby Cup Competition was played at the Stadium, Uxbridge, on Mar. 19, and resulted in a win for No. 58 Squadron by four goals and a try nil.

Felixstowe started well but after a few minutes were driven back in defence. The struggle on their line lasted for fifteen minutes before Brookes broke through and scored a try. Maclean converted.

The Felixstowe pack have nothing to learn about heeling. From the start of the game until the injury to Sketchley made them a man short they beat a heavier pack nine times out of ten for possession of the ball by superior hooking and heeling. Unfortunately their backs were not up to the standard of the forwards and bad passing and high tackling combined to bring about their downfall.

No. 58 Squadron deserved their win although most of their scoring was against fourteen men. Their halves had speed and initiative and the three-quarters broke away again and again and played a sound game in defence. The passing between the three-quarters was particularly good.

The first try was followed by a long-sustained attack which ended in Felixstowe touching down. Shortly after this Powell got across on the left wing but the try was disallowed. Felixstowe improved from this time and until half-time. The backs settled down, Wilson kicked with judgment and accuracy and the three-quarters went down on the ball when they failed to hold it. Cole played a good game at full-back and although he was hard pressed made few mistakes. The forwards made things pretty hot for 58 Squadron for a time. Rollings played a particularly good game and was easily the best forward on the field. Sinnick, too, was good in spite of the broken rib which he acquired at Gloucester only three days before.

The second half started with a spectacular dash by Chick, who ran right across the field gaining a lot of ground before he kicked into touch. A brisk series of attacks by 58 Squadron were repulsed by the desperate if unscientific tackling of the Felixstowe backs. Rollings eased things by making a mark and Sketchley drove the attack back with a good long kick into touch.

Shortly after this Sketchley went off with a broken collar-bone, and Chick came out of the scrum to play stand-off-half, Wilson moving into the three-quarter line. Felixstowe seemed to feel their loss almost at once and Patch scored a try for 58, which was converted by Maclean.

The next try was scored by Brooke on the right wing from an intercepted pass, Banting converted. Chick broke away again from a line-out and made ground with a swerving run across the field before he was crashed into touch. Felixstowe went full out to the end, but two more tries were scored against them, one by Powell and one by Maclean, the former being converted by Maclean before the end of a very long half.

After the match the Cup was presented to the winning team by Air Vice-Marshal C. L. Lambe, C.B., C.M.G., D.S.O. (President of the R.A.F. Rugby Union), who congratulated them on having won the Cup for the first time and on being the smallest Unit numerically to have ever done so. Fig. Off. Odbert, the team captain, was called upon for a speech and said Felixstowe had put up a jolly good show and called for three cheers for them.

Both teams were well supported, Felixstowe making up in the originality and quality of their community singing what they lacked in the sheer upsurge of numbers.—C. M. McA.

No. 58 Squadron:—Full-back, AC. Burroughes; three-quarters, Fig. Off. Brookes, Fig. Off. Davis, AC. Sawyer, Plt. Off. Powell; stand-off-half, Fig. Off. Odbert; scrum-half, Plt. Off. McLean; forwards, Plt. Off. Patch, Fig. Off. Banting, Sjt. Sheppard; L-AC. Nash, AC. Rooms, AC. Askew, AC. Keating and AC. Butler.

Felixstowe:—Full-back, AC. S. E. Cole; three-quarters, AC. Saunders, AC. Holbrooke, AC. Sketchley, AC. James; stand-off-half, Fig. Off. Wilson; scrum-half, Plt. Lt. Massey; forwards, AC. Leighton, AC. Rollings, AC. Gallimore, AC. Green, L-AC. Sinnick, Plt. Lt. Chick; Sjt. Dawes, L-AC. Lockwood.

Rugby Football.

R.A.F. v. Gloucester:—The R.A.F. were beaten by Gloucester by Gloucester, on Mar. 17, by two goals and penalty goal and five tries (28 points) to a goal and two tries (11 points).

The Secretary of State for Air would acclaim the concentration of the Air Force team at Gloucester as an "example of the mobility of the R.A.F." One member of the team flew from Hampshire to the Gloucester Company's aerodrome at Cheltenham and proceeded thence by car. Another member of the team was called upon in a state of emergency. The team Secretary was notified at 10.00 hours on the day of the match that a certain member of the team would be unable to play. He promptly put through a telephone call to the H.Q. of a reserve player. The reserve player was in the air at the time, but was recalled to earth by radio-telephone and dispatched by motor-car to the nearest railway station at which the train containing the rest of the team would stop. Congratulations to all concerned.

The R.A.F. team were no match for Gloucester's fast and well-trained team with a season's experience and combination behind them, but on the whole they did quite well. The tackling was poor, one or two of the Air Force team old enough in Rugger experience to know better, went neck high, with disastrous results. Another fault which should have been eradicated by now, was waiting for the whistle. On one occasion the whole Air Force team stood still, shocked surprise, waiting for a whistle that was not blown. While Gloucester scored a try. However, the forwards worked like Trojans against a faster and more enterprising pack and the backs showed speed and brains in attack.

Five minutes from the start Millington kicked a penalty goal for Gloucester and a few minutes later a dangerous Gloucester rush was only stopped by a forward pass. The first Gloucester try was from a bounce ball from the line-out and was not converted.

The first Air Force try was started by Maxwell in the line-out and carried on by Hodder, who dodged his opposite number and passed to Vines. Vines, whose speed has brought him very near to international honours in the Hockey world, ran, kicked, dribbled and finally scored. Sinnicks went off the field with a broken rib but pluckily came back and played as hard a game as before.

Just before half-time Gloucester scored from a cut through Millington, but otherwise the Gloucester attacks were held back. Burns' steady fielding and kicking and Russell's long kicks into touch.

The Air Force forwards got more control in the second half and the backs started moving. Bad handling spoilt several promising attacks. Another Gloucester push on the right wing was stopped on the line but Gloucester scored from the scrum. Gloucester scored again from a line-out before the Air Force could get up. Millington converted.

The Air Force were penalised for tackling a man some distance from the ball. Russell gained yards with a kick from the line-out and a fine run by Vines sent Hodder in for a try. Maxwell converted. The next R.A.F. try came from some quick, accurate re-passing between Norwood and Hodder and a sprint by Harvey. The forwards, chiefly Chichester, Christie and Franks, did some good work in the loose at this stage of the game, but Gloucester defence was sound.

Saxby, a Gloucester forward, intercepted a pass and ran straight in. By this time the Air Force were almost at a standstill and Gloucester scored three more.—C. M. McA.

The R.A.F. team were:—Fig. Off. E. S. Burns (Leuchars), Fig. Off. C. P. Vines (Farnborough), Fig. Off. F. S. Hodder (Andover), Fig. Off. R. V. M. Odbert (Worthy Down), Fig. Off. G. D. Harvey (Birch Newton), Plt. Off. J. Norwood (Kenley), Sq. Ldr. Russell (Air Ministry), Plt. Lt. J. S. Chick (Felixstowe), Plt. Lt. G. H. H. Maxwell (Farnborough), Fig. Off. F. V. Beamish (Sealand), Fig. Off. J. S. Franks (Leuchars), Cpl. M. G. Christie (Shrewsbury), Fig. Off. E. Chichester (Manston), L-AC. C. Rollings (Felixstowe), L-AC. Sinnick (Felixstowe).

The R.A.F. Point-to-Point.

The R.A.F. point-to-point steeplechases were held at Kimble on Mar. 10. The results were as follows:—

ROYAL AIR FORCE LIGHT-WEIGHT STEEPLECHASE.—Wing Cdr. W. R. Rea Pierrette (owner), 1; Sq. Ldr. J. Leacroft's Xmas Dolly (owner), 2; Air Cdr. A. M. Longmore's Kestrel (owner), 3. Nine ran.

NOMINATION OPEN RACE.—Maj. C. P. Stedall's Whose Izzy (owner), Capt. G. W. Heath's Weary (owner), 2; Sq. Ldr. H. Beauchamp Leslie II (owner), 3. Nineteen ran.

ROYAL AIR FORCE NOVICES' RACE.—Plt. Lt. Ferris's Terebene (owner), 1; Plt. Lt. Bryson's Rufus (owner), 2; Sq. Ldr. Cochran's Ma (owner), 3. Four ran.

ROYAL AIR FORCE WELTER-WEIGHT STEEPLECHASE.—Group C. Mitchell's Nimrod (owner), finished alone.

FARMERS' STEEPLECHASE.—Mr. F. Monk's Mouse III. (owner), 1; W. H. J. Chapman's No Ball II. (Mr. M. J. Simms), 2; Mr. C. Garner's Hunt Cwp (Mr. Day), 3. Twelve ran.

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BLUEBIRD



EXTRACTS FROM A PILOT'S DIARY RETURNING FROM A PLEASURE CRUISE ON THE CONTINENT

Dec. 12th. Heavy mist through which we could just see about half way across the aerodrome. We decided to push on to Beauvais where the fog was reported to be less dense..... had we been in any other machine than the BLUEBIRD I doubt whether we should have done so. Its low stalling speed, combined with the comfortable cockpit and confidence given by the occupants sitting side by side & being able to talk to each other, made the world of difference, & tended to make one forget the usual uneasiness one feels when flying under such conditions.

Arrived Abbeville 14.00. Having decided to stop the night we picketed down the BLUEBIRD & left it in the open with a sheet over the engine & cockpit.

The GENET started up without the slightest trouble notwithstanding the fact that it had stood out all night. We left Abbeville 11.35 after putting 4 gallons of "B P" petrol into the tank to make certain of reaching Lympe without running short.

We found Capé Grisnez with clouds at 100 ft & St. Ingelvert getting clearer; we circled around the aerodrome & then made a course across the Channel.

We reached Folkestone twenty minutes later..... During the whole trip not a single thing was done to the machine or engine excepting in the latter case, to clean the plugs.

It was a very enjoyable trip & we are very keen on repeating it in fine weather.

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AIR AFFAIRS IN PARLIAMENT.

PARACHUTES.

In the House of Commons on Mar. 9, in reply to a question by COL. DAY, the SECRETARY OF STATE FOR AIR said that all pilots in the R.A.F. were now given a complete course of instruction in the use of the parachute. The policy was to provide a parachute for every pilot, observer or other member of the crew of an aircraft while on flying duty and effect any necessary changes, to a large extent, to this.

MESS REGULATIONS.

In the House of Commons on Mar. 9, in reply to a question by CAPT. GARRO-JONES, the SECRETARY OF STATE FOR AIR said that the responsibility for the due enforcement of mess regulations rested upon the officers commanding stations. A higher supervision was provided in the shape of the periodical inspections and general control of group and area commanders.

THE SISKIN III.

In the House of Commons on Mar. 9, in reply to a question by COL. DAY, the SECRETARY OF STATE FOR AIR said that the machine on which F.L.T. W. G. Meggitt was killed at Northolt on Jan. 28 was a Siskin III and had been delivered from the makers in August, 1924. He had not received any previous complaints from other pilots as to the unfitness of this machine.

CONTRACTS.

In the House of Commons on Mar. 8, in reply to a question by MR. GILLET, VISCOUNT CURZON, as a LORD OF THE TREASURY (for the Secretary of State for Air) said that twenty-one contracts of £50,000 or over had been placed with contractors without competitive tenders for such having been received during the present financial year. The requirements in each case had been for articles which only one particular firm was in a position to supply.

STORES OFFICERS.

In the House of Commons on Mar. 14, MR. W. BAKER asked the SECRETARY OF STATE FOR AIR why the Stores and Accountant Branches of the R.A.F. could not be staffed with civilians. He asked what flying duties were performed by these 358 Wing Cdr.s, Sq. Ldrs., etc. SIR SAMUEL HOARE explained that Stores and Accountant Officers formed an integral part of R.A.F. Units in peace and war and any general replacement of them by civilians was impracticable. Substitution by civilians had been advantageously employed in a limited number of posts at home. The officers referred to were not required to fly.

THE SKY-PILOTS.

On the same date, MR. BAKER asked why the R.A.F. considered it necessary to have 25 Chaplains for a total personnel of 33,000. He thought the R.A.F. might share the Chaplains of other Arms in the same locality. SIR SAMUEL HOARE pointed out that the majority of Air Force Stations were isolated and so situated that common religious ministrations with the other Arms was impracticable. At remote stations local ministers performed the necessary duties.

THE RECRUITING STAFF.

Still agitating in the interests of the taxpayers' pockets, MR. BAKER, on the same date, asked why the Air Ministry proposed to spend £8,000 on recruiting in 1927 in view of the fact that they proposed to reduce the number of personnel. SIR SAMUEL HOARE explained that recruiting duties had still to be performed. Deficiencies had to be made good in particular trades.

THE COST OF THE BRITISH FORCES IN 'IRAQ.

In the House of Commons on Mar. 14, in reply to a question by MR. LEE-SAINT, the SECRETARY OF STATE FOR AIR said that the provision made in the Estimates 1926 for the British and Indian forces in 'Iraq had been: Royal Air Force, £2,594,000; British Army, £268,000; Indian Forces, £250,000. The figures of actual expenditure would be less.

THE SCHNEIDER TROPHY.

In the House of Commons on Mar. 16, in reply to a question by LT.-CDR. KENWORTHY, the SECRETARY OF STATE FOR AIR said he had been informed by the Royal Aero Club that the full number of British entries, three, had been made for the next Schneider Trophy Race. He had every hope that they would actually take part in the race.

LIGHT AEROPLANES.

In the House of Commons on Mar. 16, in reply to a question by MR. G. HARVEY, the SECRETARY OF STATE FOR AIR said that 20 types of light aeroplanes other than the De Havilland Moth had been tested by the civil aviation authorities at various times and had received certificates of airworthiness. MR. HARVEY said he thought that some of the other makers considered that they were not getting a fair chance. SIR SAMUEL HOARE said that he could not imagine why.

CONTRACTS.

In the House of Commons on Mar. 17, in reply to MR. GILLET, the UNDER-SECRETARY OF STATE FOR AIR said that the total value of the 21 contracts of £50,000 or over was £1,750,000 and that the contracts were for the supply of new aircraft and aero-engines, overhaul of aero-engines and the supply of aero-engine spares.

THE CARDINGTON AIRSHIP.

In the House of Commons on Mar. 17, in reply to a question by MR. ROSE, the SECRETARY OF STATE FOR AIR said that the diameter of the airship under construction at Cardington was 130 feet and her length 730 feet. The Air Ministry was working to the same weight as that laid down for her sister-ship which was being built by the Airship Guarantee Company, namely 90 tons.

In reply to a further question, SIR SAMUEL HOARE said that the actual lifting capacity of the airship could not be ascertained until the airship had been built, but the estimated total lift was 150 tons.

MR. ROSE then asked for the estimated weights of 200 soldiers with their kits, ammunition and equipment and was told 30 tons; the weight of the necessary crew and their baggage, and was told 4 tons; and the weight of the stores, fuel, food, water and furniture for a voyage not exceeding six days, and was told that the answer would depend upon the distance covered.

The undefeatable MR. ROSE (who is the member for North Aberdeen) then asked the SECRETARY OF STATE FOR AIR what was the estimated weight of a squadron of fighting aeroplanes with their pilots and mechanics, their equipment and fuel, and munitions. SIR SAMUEL HOARE said that the weight of a squadron of fighter aeroplanes of existing service types with pilots and nucleus maintenance party would be approximately 17 tons. The weight of the equipment, fuel and other stores would vary with the length of the flight and purpose for which it was undertaken.

FLYING-BOATS.

In the House of Commons on Mar. 18, in reply to a question by COL. DAY, the SECRETARY OF STATE FOR AIR said that about 17 flying boats of all types were expected to be delivered during 1927, including those for use by the Flight which was to operate in Far Eastern waters. The first cruise would probably take place in 1928. He could not disclose the contract prices for building and fitting-up a flying-boat for this cruise as this was contrary to established practice.

THE FLEET AIR ARM AND THE NAVY ESTIMATES.

In the course of the Debate on the Navy Estimates in the House of Commons on Mar. 14, LT.-CDR. KENWORTHY said that he thought we were behind other Naval Powers in the craft equipment. We were concentrating on aircraft carriers which were unweildy and vulnerable. They had their advantages, they could carry torpedo tubes, but one of their great disadvantages was that in order to launch an aeroplane they had to turn head to wind. The Americans had a catapult system of launching and he was not satisfied that the Admiralty were pushing on with this method.

LT.-CDR. KENWORTHY thought that the First Lord of the Admiralty was too optimistic about the power of the anti-aircraft guns of the Fleet. He doubted whether an anti-aircraft gun mounted on a ship going at "30 knots an hour" [The phrase is from *Hansard*, but one acquits LT.-CDR. KENWORTHY, as an ex-N.O., of such a solecism.—C. G. G.] could bring down an aircraft flying at 130 miles an hour. He thought wireless-controlled aeroplanes might be used as targets for gunnery.

In his reply the First Lord of the Admiralty said that it was very difficult to prove whether LT.-CDR. KENWORTHY was right or wrong. He agreed that there might be some kinds of aeroplanes which could be let off without anyone in them to form a target for practice. But it would not be as good practice as shooting at an aeroplane with someone in it. He suggested that the hon. and gallant Member might volunteer—

LT.-CDR. KENWORTHY said hurriedly that he would not mind if the First Lord of the Admiralty were the only person to shoot. The First Lord assured him that in that case he would be perfectly safe.

[As a matter of fact the only way in which one can imagine these "wireless" aeroplanes being of any use is at targets precisely as suggested by LT.-CDR. KENWORTHY.—C. G. G.]

AIR TRAFFIC IN GERMANY.

On Thursday, March 24 (to-morrow), at 6.30 p.m., in the Royal Society of Arts, 18, John Street, Adelphi, W.C.2, one of the most important lectures of the Session, on "Air Traffic in Germany," will be delivered before the Royal Aeronautical Society, by Major Martin Wronsky.

Major Wronsky is the Managing Director of the Deutsche Luft Hansa, A.G., and has been one of the leading spirits in raising German Commercial Air Transport to its present high level. He will illustrate his lecture with a film of the East Asia Expedition of the Luft Hansa, showing the actual happenings taken in the course of the regular operation of air transport. Besides the film, Major Wronsky will show many lantern slides of individual types of machine and of Air Transport operations.

ROUND THE ATLANTIC OCEAN.

On Mar. 13 Colonel the Marchese de Pinedo left Buenos Aires, after a change of engines, at 09.37 hours, and alighted at Monte Video at 11.45 hours.

On Mar. 15 he flew to Asuncion, Paraguay (stopping at Parana en route), and on the following day he flew from Asuncion to San Luis de Caceres, Brazil, 625 miles, over the region known as the Great Swamps, which is drained by the Paraguay River.

On Mar. 18 he flew to Guajara Mirim, from San Luis de Caceres.

On Mar. 20 he reached Manaos, Brazil.

On Mar. 21 he left Manaos at 6.45 hrs., alighted at Itacoatiara, passed over Prainha at 13.08 hrs. and arrived at Para (where the rubber comes from) at 17.50 hrs.

A MATTER OF PARACHUTES.

Information from South America concerning the collision between two of the Loening amphibians engaged in the Pan American Flight, brings out a curious statement about the accident.

According to this story, Capt. Clinton Woolsey and Lieut. John Benton, who were killed, were not wearing their parachutes according to the regulations now in force for all U.S. Air Corps pilots. The story says, in fact, that they had left their parachutes behind, apparently to lighten their load for the long trip from Chile over the Andes to Bahia Blanca.

Major Dargue, the Commander of the Flight, and Lieut. Ennis Whitehead, who was with him, were wearing their parachutes and descended safely with them after the collision. The other two officers went down with their machine and were killed.

This story is so widespread that it would be interesting to have it confirmed by an official statement.

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CHANGES IN THE R.Ae.C. COMMITTEE.

One learns with great regret that Mr. F. C. Bucknall has retired from the Committee of the Royal Aero Club. Mr. Bucknall was one of the very earliest members of the Club and was well known as a balloonist before the Aero Club came into existence. He has, in fact, served almost continuously on the various committees of the Club for over twenty years.

Perhaps Mr. Bucknall's greatest claim to distinction, so far as the Club is concerned, is that he was the only member of the Committee who could be regarded as a regular user of the Club—except perhaps during the lunch hour when one does occasionally see other members of the Committee in the Club, generally as a preliminary to a Committee Meeting. Mr. Bucknall on the other hand dined at the Club almost every night of the week and spent his evenings there. It would be a good thing for the Club if other members of the Committee followed his example.

It is to be hoped that Mr. Bucknall's resignation from the Committee does not mean his absence from the Club, for he is a most engaging conversationalist and a mine of information on all kinds of out-of-the-way subjects. Also he is one of the most kind-hearted and charitably-minded of men and has won the sincere affection of everybody who habitually uses the Club. One hopes that he may remain a member for many years to come.

Major Henry Petre, D.S.O., has been co-opted to the Committee to fill the vacancy caused by Mr. Bucknall's resignation. Henry Petre, generally known as "Peter the Monk," was one of the earliest experimenters at Brooklands. He left there to become the first pilot-instructor to the Australian Flying Corps, and soon after taking up his duties in Australia he was appointed to command the first Australian Squadron.

On the outbreak of war he took this squadron to Mesopotamia, where it was the first British flying unit in that war area. For his services there he was awarded the D.S.O. He served throughout the War, and on resigning from the Air Force joined his father's legal business.—C. G. G.

THE PORTUGUESE ROUND-THE-WORLD FLIGHT.

On March 11 Lieut.-Col. Sarmento Beires, of the Portuguese Army, who is attempting to fly round the world on a Dornier Wal seaplane (two 450 h.p. Lorraine-Dietrich engines), left Bulama, Portuguese Guinea, for Natal, Brazil. He was forced to alight near one of the Bissagos Islands off Portuguese Guinea.

Col. Beires has found that his machine will not lift its full load in the tropics, and one of the crew of four has been left behind in Bulama. This fact, which has apparently troubled more than one of the "Trans-Atlantic" aspirants, will affect his future plans, and he has cabled to the Portuguese authorities to the effect that his proposed flight from Juan Fernandez to Easter Island in the Pacific is impossible.

On Mar. 17 he left the Bissagos Islands at 18.11 hours and alighted at Fernando Noronha, off the coast of Brazil, a distance of 1,450 miles, at 11.25 hours the next day. Before starting he was compelled to jettison still another member of the original crew of four, Major Duval Portugal, so that the actual Atlantic flight was made with only a crew of two.

On Mar. 18, he flew to Natal, Brazil, where he was greeted by pyrotechnics and great rejoicing.

A salute of ten guns was fired in the Parque Eduardo VII, Lisbon, when the news of his arrival on the South American Continent was received.

On Mar. 20 he flew from Natal to Recife, Pernambuco, where he damaged an aircrew and will have to wait for a new one from Buenos Ayres.

THE URUGUAYAN SOUTH-ATLANTIC FLIGHT.

On Mar. 2, Major Larre-Borges, Capt. Larre-Borges, Capt. Ibarra and a mechanic of the Uruguayan Army who were attempting to fly from Genoa to Monte Video on a Dornier Wal seaplane (two 500 h.p. Farman engines) left Casablanca for Las Palmas, Canary Islands.

On Mar. 5 their machine was seen, by pilots of the Latécoère Casablanca-Dakar air line, lying wrecked on the African coast about 60 miles north of Cape Juby. The machine was upside down and the engines were some fifty yards away.

It now appears that an oil pipe broke and they were forced to alight in a very heavy sea and their machine was wrecked. After half an hour's struggle they managed to reach the shore, where they were captured by Moors.

They were stripped and deprived of everything of value, and they were then marched to Puerto Cansado and there held to ransom.

Pilots of the Latécoère Air Line were employed to carry an emissary from the Spanish Commandant at Cape Juby to treat with the Moors for the release of the prisoners.

Finally the Uruguayans were released on payment of a ransom of 50,000 pesetas, and were flown to Agadir.

THE 1926 COLLIER TROPHY.

The 1926 Collier Trophy, awarded annually for the greatest contribution to aeronautics in the United States during the year, has been awarded to Major E. L. Hoffman, U.S. Army Air Corps, for the outstanding part he has played in the development of the parachute.

In 1919 Major Hoffman was posted to McCook Field, Dayton, Ohio, as Chief of the Equipment Section of the Engineering Division, U.S. Army Air Service. Up to that time two men of this section had succeeded in making parachute bodies without harness which they were testing by weights from a D.H.4 biplane.

One struggling American manufacturer, Mr. Irvin, whose name is now known throughout the world, had sold his parachute bodies to the Government for test, but very little attention, support or encouragement was given to the activities of these pioneers.

Major Hoffman formed a special parachute department and carried out intensive development work, and he personally devised mechanism for measuring and recording shock, rigging cords, the multiple vent, the vent-operating mechanism, reinforced cordage and D rings, and he finally drew up specifications and made the drawings for the first parachutes purchased by the Air Corps, the so-called "A" type, 550 of which were ordered.

With these parachutes, the Air Corps learned to jump over 1,000 live, premeditated jumps being made with them.

It was his policy to encourage private enterprise in parachute development and the industry was kept informed of all developments as they occurred. Practically the whole development of the parachute is due to Major Hoffman, who, apart from carrying out most of the theoretical work in this hitherto little-known field of aeronautics, was constantly flying in the testing aircraft and also made jumps to prove his contention that his devices were sound.

The Irvin parachute, the development of which is directly due to Major Hoffman's development and encouragement is now standard in the U.S. Army Air Corps and Naval Air Service, the R.A.F., the R.C.A.F., and the R.A.A.F., as well as in other countries. It has already saved over 42 lives in the United States. It has also been instrumental in saving lives in the R.A.F., so that the personnel of the Royal Air Force should be directly interested in the award of the Collier Trophy.

ARMSTRONG-SIDDELEY v. COURTNEY.

On Mar. 17, the action of Armstrong-Siddeley Motors Ltd. versus Mr. F. T. Courtney, which had been heard before Mr. Justice Atton and a common jury on Mar. 10 and was ended, the defendant consenting to judgment for the plaintiffs in the claim and counterclaim, in which Armstrong-Siddeley Motors Ltd. sued Mr. Courtney for £347 1s. 8d. the price of a car sold to him, and monies paid by them in his behalf. The defendant, who acted as test pilot for the plaintiffs from 1922 till 1925, had admitted the claim, but counterclaimed £390 for another car, which he said that the plaintiffs had presented to him as a reward for winning the King's Cup in 1923 and had afterwards sold for him. He had further put in a claim for £352 as commission and damages for alleged wrongful dismissal.

Mr. Singleton, K.C., and Mr. L. R. Lipsett appeared representing the plaintiffs, and Lord Halsbury, K.C., and Mr. Gordon Alchin for the defendant.

On Mar. 17 Lord Halsbury said that Mr. Courtney did not wish to proceed with the case and therefore there must be judgment for the plaintiffs with costs. Mr. Courtney wished to go into the witness box and answer questions which counsel for the plaintiffs would put to him.

When Mr. Courtney went into the box Mr. Singleton said:—"I understand, Captain Courtney, that you wish to withdraw the suggestions which you made against the honesty of Mr. Siddeley and Major Green (the plaintiff's chief aeronautical designer) during your examination or cross-examination."

Mr. Courtney replied:—"Yes. I did not wish to make a charge and anything I said which might have appeared to make such a charge I am more than anxious to withdraw."

His Lordship thereupon said:—"That comes from a very gallant gentleman, and it does him great credit."

Mr. Singleton said he was glad there was no longer need to pursue the case.

The only comment necessary is that it is a great pity that this case was ever allowed to come into court at all. One feels sure that if Mr. Siddeley and Mr. Courtney had had an opportunity of talking the matter over personally they would have come to an amicable arrangement on both claim and counterclaim, and so outsiders would have been prevented from receiving the very erroneous impressions which they must have acquired about both sides of the argument.

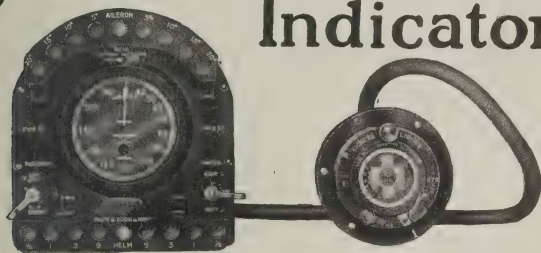
One hopes that the straightforward action of Mr. Courtney will result in a renewal of friendly relations between him and the great firm for which he has done so much valuable work in the past.—C. G. G.

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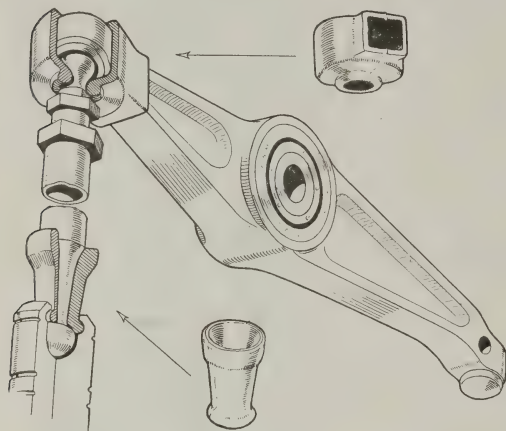
EXCLUDING GRIT AND INCLUDING GREASE.

Desmo Ltd., of 31, Stafford Street, Birmingham, the well-known manufacturers of car and motor-cycle accessories, have for some time supplied a series of dust-and-grit-excluding and grease-retaining covers for the exposed joints of car steering and brake mechanism, etc., of a singularly neat and effective type.

These Desmo "Flexi-Lubri-Covers" as they are called are moulded from rubber of the same kind as is used in the rubber joints used on aircraft petrol systems. This rubber does, in fact, one is informed, conform to Air Ministry specifications for petrol-resisting rubber, and will resist the efforts of grease and oil almost indefinitely.

Experience with these covers for normal motor-car mechanism of the type for which they were first produced shows that they are very much more effective for excluding water and grit than any form of leather casing, and at the same time they permit of the injection of lubricant by springing aside part of the cover itself with the spout of a special grease injector.

Desmo "Flexi-Lubri-Covers" have also been supplied in considerable numbers for encasing tappet-rod and rocker-arm-joints on overhead-valve motor-cycle engines with very satisfactory results, and this success has led to a consideration of their use for aircraft engines.



A detailed sketch shows Desmo covers applied to the valve-gear of an Armstrong-Siddeley Jaguar engine. One cover of a very simple and compact form springs over the rocker-arm and round the neck below the upper ball-end of the push-rod. Another springs over the lower end of the push-rod, and a rim in the lower end of the cover springs out into a groove turned inside the cup of the tappet itself.

It is obvious that these fittings should not only retain lubricant and exclude dust, but should to some extent tend to reduce noise from these parts.

It is understood that this particular application of the Desmo device is to be tested in service on an extended scale in the immediate future.



A GREEK PRODUCT.—The machine illustrated above is the Helithon, built at the Greek Naval Aircraft Factory, which has been equipped and is being run by the Blackburn Company. The machine is a two-seater general purpose biplane with interchangeable undercarriage for land or sea work. It was designed by Major Buck, the Blackburn Co.'s Manager in Greece, and by Mr. Wyde, one of his staff, specially to meet the requirements of the Greek Navy. It is a simple straightforward job, inexpensive to produce and maintain. The engine now fitted is the 120 h.p. Salmson, but this probably will be superseded when the machine is produced in quantities by the Armstrong-Siddeley Lynx. The span is approximately 26 ft. 3 ins. and the top speed is about 90 m.p.h.

The valve-gear of a modern aer-engine is likely to put these appliances to a very severe test indeed, and it can certainly be said that if they are worth testing under such conditions they could equally well be tried with every prospect of success as a protection for some of the many joints and articulations which are to be found on the undercarriage and so forth of the modern aeroplane.

THE PROPOSED BRIGHTON AERODROME.

A week or two ago one had the opportunity of inspecting the area North of Portslade and South-West of Devil's Ditch which is to become the Brighton Aerodrome if schemes now on foot are fulfilled. The existence of the proposed aerodrome will depend very much on whether the proposed motor-racing track is built, and one gathers that the promoters of the motor track still have to obtain some of the money which will be necessary to build it.

If the enterprising people of Brighton are wise, they will go ahead with the aerodrome without waiting for the motor track to be finished, for the aerodrome could at very little cost be put into good enough order to be used by flying visitors to Brighton this year. The work of proper fencing and shed building could be done afterwards. All that is needed is a wire fence to keep sheep off the ground, and a portable shed, not like those which fell down at Croydon merely to house one or two light aeroplanes if surprised by bad weather.

A proper metalled road runs to within half a mile or so of the aerodrome area, and the existing cart-track could be made good enough for use by cars in ordinary weather at very little cost.

Lord Thomson, the Chairman of the Royal Aero Club, and Mr. Norman Hulbert, Secretary of the Institution of Aeronautical Engineers, who inspected the aerodrome the same day under the very worst possible weather conditions were quite satisfied about the possibilities of this site as an aerodrome. And Lord Thomson, judging by the cutting from the local papers, inspired even the local newspaper men with considerable enthusiasm for the project.

Personally the position of the aerodrome strikes one as being exceptionally good. It is right on the top of the plateau, and can be approached in any direction of the wind without interference from higher ground in the vicinity or from trees or buildings round the edge. There is a good 700 yards' run over comparatively level ground in the direction of the prevailing wind—not 70 yards as was reported in some papers at the time—and, as the wind sweeps unbroken over the plateau, that distance is worth considerably more than its mere measurement.

Compared with Shoreham, shut in as it is with railway and the river and the sea and the hill at Lancing, the proposed aerodrome is ideal. Shoreham, with all its faults, was good enough to be used as an R.F.C. Training Station during the War 1914-18. So evidently the proposed aerodrome above Portslade ought to be good enough for any type of modern aircraft.

One hopes that it will be developed with or without the motor track in the vicinity. If it is made a success British aviation will owe further thanks to the pioneering spirit of Mr. Herman Volk, who discovered the site, besides that fifteen-year-old debt which it owes him for starting the first civil seaplane station.—C. G. G.

THE SCHNEIDER TROPHY CONTEST.

The Royal Aero Club announces that three entries for the Schneider Trophy Contest have been made on behalf of Great Britain, and that acknowledgment of the entries has been received from the Aero Club of Italy.





PALMER



LANDING WHEELS

AND TYRES



STANDARD SIZES

Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore				Length	Bore				Length	Bore	
375×55	168	111.12	25.4	Central	700×100	112	150.	38.09	Central	1000×150	210	185.	60.32	Central
300×60	16	111.12	25.4	Central	"	176	178.	44.45	Central	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	"	147	178.	55.	Central	"	149	185.	55.	Central
"	172	130.	38.09	Central	650×125	119	178.	55.	132/46	"	155	220.	66.67	Central
575×60	21	160.	28.	Central	"	188	120.	34.92	Central	"	166	185.	55.	125/60
"	80	150.	38.09	104/46	750×125	77	178.	44.45	132/46	900×200	107	185.	55.	Central
"	186	120.	34.92	Central	"	92	185.	55.	135/50	"	108	185.	55.	125/60
"	190	150.	38.09	Central	"	95	185.	55.	Central	"	128	220.	66.67	Central
650×65	78	178.	44.45	132/46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	79	178.	44.45	Central	"	112	150.	38.09	Central	"	157	185.	80.	Central
"	100	178.	38.09	132/46	"	176	178.	44.45	Central	"	202	185.	60.32	Central
"	101	178.	31.75	132/46	"	179	178.	55.	132/46	1100×220	134	220.	66.67	Central
600×75	21	160.	28.	Central	800×150	161*	185.	55.	135/50	"	136	250.	80.	Central
"	180	150.	38.09	104/46	"	162*	185.	55.	Central	975×225	192	185.	60.32	Central
"	186	120.	34.92	Central	"	163*	185.	66.67	135/50	"	194	185.	55.	125/60
"	190	150.	38.09	Central	"	169†	185.	55.	135/50	1250×250	133	250.	80.	Central
700×75	78	178.	44.45	132/46	"	177	185.	55.	135/50	"	154	304.8	101.6	Central
"	79	178.	44.45	Central	"	183	185.	55.	Central	1500×300	115	304.8	101.6	Central
"	100	178.	38.09	132/46	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
"	101	178.	31.75	132/46	1000×150	167	185.	55.	125/60	1750×300	139	400.	152.4	Central
700×100	77	178.	44.45	132/46	"	174	250.	80.	Central	"	191	350.	150.3	Central
"	92	185.	55.	135/50	"	182	185.	55.	Central	1750×350	193	400.	125.	Central
"	95	185.	55.	Central	"	187	220.	66.67	Central					
"	99	178.	38.89	132/46	"	201	185.	60.32	125/60					

*Wheels Nos. 161, 162, 163 and 211 are of stronger type than the other wheels for 800 × 150 tyres. †Wheel No. 169 is fitted with Ball Bearings. Grease gun equipment is now a standard fitting on all wheels.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE FLYING CLUBS. The London Aeroplane Club.

Report for week ending Mar. 20.

FLYING TIME.—82 hrs., 10 mins. This beats all previous records for a week's flying put up by the Club. On Sunday, Mar. 20, 22 hrs. 45 mins. flying was done, which also is the Club's best record for one day.

AVIATORS' CERTIFICATES.—The following members passed their tests for Certificates:—T. W. Eady, C. R. Campkin, D. H. P. Esler, and J. H. Saffery.

INSTRUCTORS.—Messrs. F. G. M. Sparks, A. S. White, R. W. Reeve, and C. D. Barnard.

DUAL INSTRUCTION.—G. Black, F. Clarkson, H. F. Greenland, A. E. Mines, C. H. Swan, L. G. Sykes, E. Symmons, Miss Fletcher, G. M. Randall, Miss Spooner, T. R. Richards, C. Miesegaes, L. Martin, Dr. Cook, Mrs. Cook, Capt. H. Spooner, H. Lang, G. C. Bonner, H. O. Gugenheim, J. H. Saffery, E. J. B. King, G. H. Saxon Mills, J. J. Hofer, L. W. Gibbens, H. M. Samuelson, R. Drysdale Smith, D. Hewett, M. P. Susman, E. R. Wilson, J. G. Crammond, A. J. Richardson, D. A. Wilson, R. Sanders-Clark, G. N. Howe, T. S. Keith, J. D. Simson, R. Leighton Crawford, H. Wickett, R. P. Cooper, A. J. Mulder.

SOLOS.—Sq. Ldr. M. E. A. Wright, R. Sanders-Clark, I. J. C. Mitchell, K. V. Wright, E. E. Stammers, O. J. Tapper, G. Terrell, G. H. Craig, Major K. M. Beaumont, D. H. P. Esler, J. H. Saffery, H. Spooner, M. L. Branson, G. C. Bonner, C. R. Presland, A. G. D. Alderson, R. P. Cooper, T. W. Eady, R. P. Malcolm, E. S. Brough, A. R. Ogston, J. J. Hofer, H. Solomon, Miss O'Brien, C. R. Campkin, J. G. Crammond.

PASSENGER FLIGHTS.—W. Tapper, C. H. Swan, A. E. Mines, Mrs. Woods Humphrey, R. E. Penny, O. S. Barros, D. A. Wilson, Miss Johnson, D. F. Wilson, E. Symmons, S. W. Smith, E. G. Parks.

The Lancashire Aeroplane Club.

Report for week ending Mar. 19.

Flying time for the week 27 hrs., made up as follows:—
Dual with Mr. Brown:—Messrs. Nelson 1 hr. 10 mins., Musgrave 1 hr. .05 mins., Caldecott 1 hr., Miss Emery 40 mins., Miss Brown 40 mins., Messrs. Gattrell 40 mins., Keay 30 mins., Harper 25 mins., Forshaw, Davidson, Collinson, Shiers and Jenkinson 20 mins. each, Dickinson, Crosthwaite, Birley, MacNair and Anderson 15 mins. each, Goodyear 10 mins.

Dual with Mr. Cantrell:—Messrs. Mulder 50 mins., Wade 45 mins., Michelson 30 mins.

Solo:—Messrs. Slater 1 hr. 40 mins., Twemlow 1 hr. 15 mins., Costa 45 mins., Lacayo 3 mins., Birley 20 mins.

Joy-rides:—With Mr. Brown—Messrs. Murrell 3 hrs. 15 mins. (photography), Hubbard and Smith 15 mins. each, Miss Clancy 15 mins., Messrs. Leeming and Haynes 10 mins. each. With Mr. Cantrell—Messrs. Murrell 55 mins. (photography), Beaven 15 mins. With Mr. Scholes—Messrs. Smith 35 mins., Williams 20 mins., Mills 10 mins. With Mr. Costa—Messrs. Torres 35 mins., Seares 20 mins. With Mr. Lacayo—Miss Mitchell 30 mins., Mr. Brookes 15 mins. With Mr. Goodfellow—Mr. Morley 20 mins., Miss Bodenham 10 mins. With Mr. Leeming—Miss Shiers 20 mins.

There are three stumbling blocks in the course of this Club: either the weather damnable, or the members fail to attend, or the Devil enters into the machine. Last week the weather, except for stiffish breezes, was perfect, crowds of members turned up, and immediately, to celebrate the first decent week of the year, every darned machine went out of commission for one reason or another except the Renault-Avro. On the last day of the week one Moth returned to the fray, to make up for which the Avro had to be laid up on Sunday night for engine overhaul, having done her time.

One turns for comfort to the simple, yet beautiful words of Prof. Einstein:—"Inertia, gravitation, and the metrical behaviour of bodies and clocks are thus reduced to the single quality of a field, and this field in turn is made dependent on the bodies (generalisation of Newton's law of gravity, or the corresponding field law, as formulated by Poisson). Space and time are so divested, not of their reality, but of their causal absoluteness (absoluteness—influencing, that is, not influenced), which Newton was compelled to attribute to them to give expression to the laws then known. The generalised law of inertia takes over the rôle of Newton's law of motion. From this short characterisation it will be clear how the elements of Newton's theory passed over into the general theory of relativity, the three defects above mentioned being at the same time overcome."—Ab-so-lutely!

The Newcastle-upon-Tyne Aero Club.

Report for week ending Mar. 20.

Flying time 16 hrs. 30 mins.—Dual 5 hrs. 35 mins. Solo (Training) 5 hrs. 35 mins. "A" Pilots 3 hrs. 45 mins. Joy-rides 1 hr. 35 mins. The following had instruction with Mr. Parkinson:—Mr. A. H. Wilson, Mr. D. Wilson, Mr. Middleton, Mrs. Heslop, Mr. Welch, Mr. Rasmussen, Mr. Miesegaes.

Solo, training:—Miss Leathart, Mr. Bainbridge, Mr. Mathews, Mr. Turnbull.

"A" Pilots:—Dr. Dixon, with Mr. H. Ellis, and Mr. Hitchin. Mr. R. N. Bullock, Mr. R. N. Thompson, Mr. E. Ellis and Mr. A. Bell. Mr. Baxter Ellis, with Mr. Morgan. Mr. C. Thompson, with Mrs. Heslop. Passenger with Mr. Parkinson—Miss Slade.

Advanced dual with Mr. Parkinson, Mr. Turnbull, Mr. Mathews and Mr. R. N. Thompson.

Mr. and Mrs. Jack Hylton visited the aerodrome during the week with Mr. and Mrs. Parry. Mr. and Mrs. Hylton, Mr. and Mrs. Parry and members of the band flew with Mr. Parkinson. Mrs. Hylton and Mrs. Parry asked for and enjoyed a complete programme of stunts. This is the second occasion on which Mr. and Mrs. Hylton have flown at the aerodrome.

Lord Ossulston has visited the aerodrome by air on numerous occasions, as he does almost every week, his home being within 30 mins. flying from the aerodrome.

Mr. H. D. Mathews did all the tests for his licence during the

week, putting up a very good show both as regards flights and landings.

Mr. Irving visited the aerodrome on Saturday and Sunday, inspecting the wreckage of the machine which broke up with him in recently. He is making excellent progress now. His arm is in plaster of Paris, which is useful for him to strike matches on.

The Midland Aero Club Ltd.

Report for week ending Mar. 19.

Total flying time 10 hrs. 32 mins.

Dual instruction by Mr. McDonough:—A. Ellison, J. C. Rowland, F. Coxhill, R. L. Jackson, H. Beamish, S. H. Smith.

"A" Pilots' solo:—E. R. King, E. J. Brighton, J. Brinton, J. Willis.

Mr. Brighton made two flights with passengers.

Test flights 56 mins. High wind made instruction impossible Sunday.—V. M. P.

The Yorkshire Aeroplane Club.

Report for week ending Mar. 20.

Flying time for week 11 hrs. 55 mins., consisting of:—Solo 4 hrs. 35 mins. Dual instruction 6 hrs. 45 mins. Pleasure flights 20 mins. Tests 15 mins. In all 32 flights were made.

Messrs. Carter, M. B. Lax, Mann, Norway, Dawson and Wood flew solo and Messrs. Wilson, Yeomans, Oglesby and Batcock had dual instruction.

On Tuesday, Mr. Beezer, the Club's ground engineer, went over Brough and proceeded to strip the Avro which is being lent to the Club by the North Sea Company. It was inspected and passed the same day and on Wednesday Flg. Off. A. G. Loton flew it over Sherburn and handed it over to the Club. On Saturday Capt. W. took it up for a trial.

On Sunday afternoon, Mr. Kittel, a member of the London Club landed at Sherburn in his own Moth after a trip of 2 hrs. 20 mins. from Stag Lane. He intended to fly over to Harrogate to pay a call, but as time was short he flew straight back to London.

Mr. Wilson has been making good progress and will be ready to fly solo after a little more dual instruction.—G. A. F. E.

The Hampshire Aeroplane Club.

Report for week ending Mar. 18.

Our instructor returned from Brough on Tuesday, but very high wind prevented any flying during the latter part of the week. However, Mr. Thomson managed to give 2 hrs. 45 mins. instruction and solo put in 50 mins., making a total of 3 hrs. 35 mins. flying time.

The following had instruction:—Lieut. Heinemann, R.N., 55 mins. A. R. Mellor 50 mins., Kerry 15 mins., Stanford (our assistant ground engineer, who is sufficiently enthusiastic about flying to want to learn to fly) 15 mins., and the Hon. H. R. Grosvenor 30 mins.

Mr. Grosvenor is a distinct favourite in some circles for the Grand National, so here is wishing him the best of luck on Friday.

The soloists were Señor de la Cierwa 25 mins., Messrs. Grosvenor mins., Keeping 10 mins., and Bowen 5 mins. Mr. Bowen is evidently a man of fixed habits, for he never misses his weekly five minutes.

WORLD'S RECORD FOR LIGHT AEROPLANES.

Aeroplanes and Seaplanes.

The Fédération Aéronautique Internationale have introduced the following new Classes for World's Records for Light Aeroplanes to start from May 1, 1927:—

1st Category. Two-Seater Aeroplanes.—Weight empty not more than 400 kilos.—For every record two-seater aeroplane must carry a person in each seat.

2nd Category. Single-Seater Aeroplanes.—Weight empty not more than 200 kilos.

3rd Category. Single-Seater Aeroplanes.—Weight empty from above 200 kilos. to 350 kilos. inclusive.

In each of these categories the following Records without replenishments in flight may be established:—

1. Distance, returning to the point of departure without alighting.

2. Distance in a straight line without alighting.

3. Speed over a closed circuit of 100 kilometres.

4. Height.

Weight empty means the total weight of the machine in flying order. The following weights are not included:—Fuel (Petrol or Oil), Crew, Instruments for controlling the Record required by the F.A.I. and Parachutes and Oxygen Apparatus, if any.

The weight of Water in the Radiators shall count in the weight empty.

In the two-seater category, the weight of the Crew must be at least 150 kilos, or made up to this weight by ballast. The ballast appliances must be sealed.

All Records must be made under the supervision of Officials appointed by the Royal Aero Club.

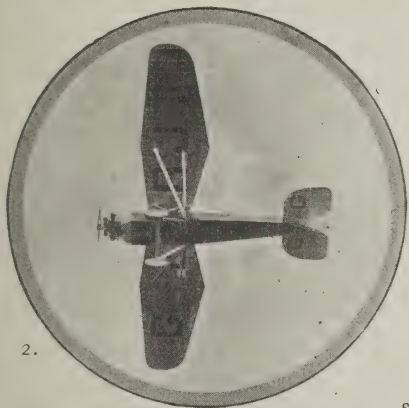
A Fee of £5 5s. is payable in respect of each attempt. In addition to this Fee the expenses incurred by the Royal Aero Club in supervising the flight are payable by the Entrant.

The Fee, together with all particulars of the Aeroplane, must reach the Royal Aero Club at least seven days prior to attempt being made.

THE AERIAL DERBY.

It was announced by the British Broadcasting Corporation on the evening of Mar. 21 that the Air Ministry had given its permission for the entry of the Hawker Hornbill (erroneously announced as the Horsley), the Fairey Firefly, the Avro Avenger, and the Gloster Gocrock in this year's Aerial Derby.

This puts us in the unusual position of having four entries for a race concerning which no official announcement as to date, place or regulations has yet been made.



1. The Yeovil Bomber.
2. The Westland Widgeon.

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For eleven years we have been designing and building aeroplanes, and to-day the reputation of Westland Aircraft for safety, speed and comfort is world-wide.

Our designs comprise all types from private single seaters to large twin engined bombing machines.

In these days road travel is anything but pleasant. By owning a light passenger machine you can recapture the joys of travel. We intend to publish shortly particulars of Widgeon III, a light passenger Monoplane which will be within reach of the man of moderate means. The machine folds, and will go comfortably into an ordinary garage. Widgeon II, the parent machine was the fastest machine in the Grosvenor Cup Race this year, with an average speed of 105.5 m.p.h.

We are supplying numbers of machines to the Royal Air Force both at home and abroad. We have our own 4 ft. wind channel for testing models, and our extensive aerodrome is situated by the side of the works for testing the finished machines. Enquiries are solicited for aircraft for all purposes.

WESTLAND AIRCRAFT FOR BUSINESS OR PLEASURE.

WESTLAND AIRCRAFT WORKS

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YEOVIL

ENGLAND.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 12; Tuesday, 12; Wednesday, 13; Thursday, 11; Friday, 10; Saturday, 13; Sunday, 0.

IMPERIAL AIRWAYS LTD.

London—Paris; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam: Machines 26, passengers 200, freight 12 tons.

AIR UNION:

Paris—London: Machines 20, passengers 34, freight 15 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 12, passengers 23, freight 2½ tons.

DEUTSCHE LUFTHANSA A.G.:

Berlin—London: Machines 12, passengers 27.

SABENA:

Brussels—London: Machines 0, passengers 0.

PRIVATE:

Machines 0, passengers 0.

Total number of trips by British Machines, 26, carrying 200 passengers. Foreign Machines, 44, carrying 84 passengers.

Comparative Figures:

Week ending Mar. 20:

Machines, 70; Passengers, 284; Crews, 116; Total personnel, 400.

Corresponding week, 1926:

Machines, 94; Passengers, 262; Crews, 116; Total personnel, 378.

Corresponding week, 1925:

Machines, 74; Passengers, 200; Crews, 90; Total personnel, 290.

Corresponding week, 1924:

Machines, 98; Passengers, 255; Crews, 166; Total personnel, 421.

Corresponding week, 1923:

Machines, 71; Passengers, 234; Crews, 122; Total personnel, 356.

Corresponding week, 1922:

Machines, 50; Passengers, 129; Crews, 84; Total personnel, 213.

Corresponding week, 1921:

Machines, 44; Passengers, 168; Crews, 62; Total personnel, 230.

Croydon Notes.

On Apr. 10 Imperial Airways will resume the full Sunday service. It always seems rather a pity to drop these at all and one hopes that by next year there will be enough traffic and competition to keep them going.

On Apr. 30 the through service to Basel and Zürich will be resumed. This will mean an extra service per day to Paris. One would have thought that in the Winter there would have been much more traffic to Switzerland from England than in the Summer. It is a very uncomfortable and slow journey from London to the Swiss winter-sports resorts by surface transport.

One imagines that with comfortable, warm, three-engined machines and with proper ground organisation a winter-sports air service from London to St. Moritz in six hours should be a paying proposition. Similarly a service in eight hours at a reasonable fare from London to Nice should do big business. One has many friends who winter on the Riviera who have frequently asked one if it is possible to go there by a regular air line. When one replies that there is no such line they are most surprised, and get the idea that the air lines are unenterprising.

Mr. H. G. Wells recently said in an article that aeroplanes are wonderful things, they can fly to Australia, South Africa, the Riviera, etc., but the fact remains that they do not as a habit—yet. If aeroplanes were made to do regularly what is within their powers they would be extremely useful.

Sir Alfred Mond and members of the chemical combine have hired the Hampstead from Imperial Airways to attend chemical conferences in Germany, Belgium and France. In this way they can do their business in the three countries in three days instead of taking about a week or more as they would have done travelling by surface transport.

Mr. Bert Hinkler brought the Cirrus-engined Avian to the A.D.C. works on Friday for the makers to examine the engine installation. This is the machine on which he will shortly attempt to fly to Australia.

It has a duration of more than 15 hrs. and Col. Darby suggested that once the machine is in the air and pointing along a line to Australia the only instrument Mr. Hinkler will require is an alarm clock to wake him just before the fifteen hours are up.

A.D.C. Aircraft have now closed the entrance to their works on the Sutton road and the main entrance is now on Purley Way, the new motor-road to Brighton and Eastbourne. This will be much more convenient when the new aerodrome buildings are occupied, which will be in a few months, as then both entrances will be alongside one another. Up to now the A.D.C. works have been isolated from the Terminal buildings and might be on different aerodromes, for the personnel of A.D.C. seldom saw any of the Air Line people.—G. D.

AT LAST.

On Mar. 18, at Kalendia aerodrome, on the Nablus Road, near Ramallah, Field-Marshal Lord Plumer, the High Commissioner, christened a D.H. Hercules the *City of Jerusalem*. During the life of the Instone Air Line it was incessantly expected that the directors would name an air liner after their ancestral home town. As a matter of fact, however, they

never got beyond the *City of Cardiff* and *City of London*. Now, however, that Imperial Airways have "pitched their moving tent a day's march nearer home," so to speak, they have gone the whole hog (unfortunate word). Presumably it all bears on the famous theory of relativity.

THE UGANDA AIR MAIL.

The Postmaster-General announces that the despatch of letter air mails by the experimental air service to Uganda and Kenya has been suspended in both directions until further notice.

THE FLYING DUCHESS.

In the last year or so Her Grace the Duchess of Bedford has done a large amount of flying. She has frequently flown in a Moth from Stag Lane to Woburn Park, the Duke of Bedford's estate in Bedfordshire.

On the estate there are long, wide, grass paths running in various directions along which a Moth can land easily.

The Duchess recently made a flight in one of the D.H. Hercules machines.

NOTABLE NEW PILOTS.

Among those who have qualified for the Royal Aero Club Certificate as aviators during the past week or so are several people whose names are already well known in aviation although they have not been pilots. These include the following:—

Mr. Alex H. Bell, the Secretary of the Newcastle-upon-Tyne Aero Club, who is very largely responsible for the remarkable success of that organisation.

Mr. Harold Bolas, the well-known designer of the man-excellent aircraft constructed by George Parnall and Company. Mr. Bolas has learned to fly at the Bristol Flying School, Filton.

Señor Don Juan de la Cierva, the inventor and designer of the Auto-giro, who has for some time been flying as member of the Hampshire Aeroplane Club.

The Hon. Geoffrey Cunliffe, son and heir of Lord Curcliffe of Headley, who was himself an R.A.F. officer in 1917-18.

ANOTHER GERMAN RECORD.

On Mar. 16, at Dessau, Herr Schnäbele, flying a Junkers J. 33 monoplane (320 h.p. Junkers L.5 engine) broke the World's duration record, carrying 500 kgs. of useful load by remaining in the air for 14 hours 53 mins. Herr Schnäbele is the senior pilot of the Junkers Werke. He was in charge of the Berlin—Pekin—Berlin flight made last year by two Junkers G. 24 monoplanes to examine the possibilities of through service to China.

FLYING IN BOLIVIA.

Mr. J. R. King, who is well known as a pilot in this country and at Brooklands in particular, is now in Bolivia flying D.H.s. for the local Government. The machine is a seaplane supplied by A.D.C. Aircraft Ltd.

Recently he flew from Riberalto to Maldonado, in Peru over 320 miles, in 2 hrs. 50 mins., and returned in about the same time. One hopes that Bolivia will be kinder to him than was Egypt and the Hedjaz.

A. V. ON AIR-LINERS.

Sir,—Some of your readers may have seen an article in a daily newspaper recently on "Air Liners of the Future," written by myself. I should like them to know that the article was written by a journalist from notes I gave him, on condition that he did not publish the article until I had approved of it.

The article as published was submitted to me. There was an absurd allusion to swimming baths, apart from other statements of which I did not approve, and which necessitated rewriting much of the article, but unfortunately the journalist's version and not mine was published.

I shall be much obliged if you will kindly publish this letter, otherwise my friends and practical people will think that there is "screw loose" somewhere. (Signed) A. V. ROE.

NEW COMPANY.

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MORTGAGES AND CHARGES.

BRITISH ANZANI ENGINEERING CO. LTD.—Particulars filed of £600 debentures authorised Feb. 25, 1927, charged on the Co.'s undertaking and property, present and future, including uncalled capital (if any), the amount of the present issue being £5,000.

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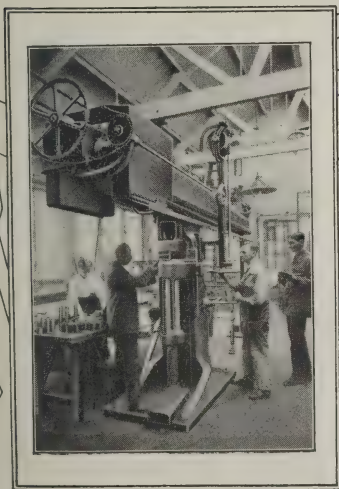
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HERR UNGEWITTER.

On Mar. 14, Herr Kurt Ungewitter, the chief pilot of the Albatros Flugzeugwerke G.m.b.H., was killed at Staaken, Berlin, while testing a new Albatros training biplane. From the outbreak of the War to 1917 Herr Ungewitter was test pilot for the Rumpler and Albatros companies. He then joined a fighting squadron and won high distinction.

After the War 1914-18 he became chief pilot of the Deutsche Luftreederei and in 1922 he returned to the Albatros Company, for whom he carried out much valuable work. He flew particularly well in the Rundflug in 1925.

On behalf of British aviators one offers to their German colleagues the deepest sympathy in the death of a distinguished comrade.

MAJOR J. R. GRANT.

All who knew him will regret to hear of the death, on Mar. 15, of Major J. R. Grant, who, from 1920-1925, was superintendent of the Waddon factory of the Aircraft Disposal Company Ltd. (now A.D.C. Aircraft Ltd.).

Major Grant lost an eye and sustained other serious injuries when destroying unused bombs after the Armistice.

The fine condition in which the old Aircraft Disposal Company delivered machines to various foreign Governments was brought about largely by the quality of Major Grant's work and this policy has been ably carried on by Capt. Roy Walker, his successor.

Major Grant was exceedingly popular with all who worked under him. Those of us who came across him in business or otherwise have lost a very real friend. During the period 1920-25 one can recall scores of kindnesses which one received personally from Major Grant, and he would always go much out of his way to help anyone in difficulties.

When he left the Aircraft Disposal Co. he went to the Stanton Ironworks Co. in Nottingham, and later went into business in Kingston.

Although he had temporarily left aviation he had every intention of returning, and the loss is a definite one to the aeronautical community. To his widow and children one offers sincere sympathy.—G. D.

PERSONAL NOTICES.**DEATHS.**

ARBON.—On Mar. 11, 1927, at the Villa Molière, Paris, Sidney Harold (Paul) Arbon, of Oklahoma, U.S.A., and late R.A.F., youngest son of the late John Mowlem Arbon, of Hendon, and brother of Mrs. Emile

Deen, of Berkhamsted Hill, Herts, and Henry John Arbon, of Winchmore Hill, aged 39. (American papers, please copy.)

HAYWARD.—On Mar. 15, 1927, at Eastbourne, after an operation, Anthony Stobart, son of Sq. Ldr. and Mrs. C. H. Hayward, of Yew Tree Lodge, Ashford, Middlesex, aged 9½ years.

PICKERING.—On Mar. 18, at Elham, Kent, as the result of a flying accident, L-AC. William John Pickering, R.A.F.

PRIESTMAN.—On Mar. 18, at Elham, Kent, as the result of a flying accident, Frederick Priestman, Plt. Off., No. 11 (Bombing) Sqdn., R.A.F.

Mr. Priestman passed out of the R.A.F. College in July, 1925, and was posted to No. 11 (Bombing) Sqdn. for photographic duties. He was a son of Mr. A. T. Priestman, of Bradford, and was educated Bradford Grammar School.

MARRIAGE.

STRONG—RUPPRECHT.—On Mar. 9, in London, William Ivain Norman Strong, R.A.F., son of Ernest Sidney Strong, Rawal Pindi, Punjab, India, to Martha Wright Rupprecht, daughter of the late Mr. and Mrs. Webster Wright, of Upper Montclair, New Jersey, U.S.A.

FORTHCOMING MARRIAGES.

JACKSON-TAYLOR—COOKE-YARBOROUGH.—A marriage has been arranged, and will take place on Apr. 21, between Flt. Lt. Philip Stuart Jackson-Taylor, R.A.F., only surviving son of Mr. B. P. Jackson-Taylor and the late Mrs. Jackson-Taylor, of Hereford, and Elisabeth Serena, youngest daughter of Canon and Mrs. J. Cooke-Yarborough, of 1, Hans Street, S.W.1.

LEATHER—LAURIE.—A marriage has been arranged, and will take place quietly in London on May 25, between Sq. Ldr. Ralph Towler Leather, A.F.C., R.A.F., elder son of Col. Gerard F. T. Leather and Mrs. Leather, of Middleton Hall, Belford, Northumberland, and Lily, widow of Capt. Donald S. Laurie, O.B.E., R.E.

MACLEAN—CAMERON.—The engagement is announced between Sq. Ldr. L. J. MacLean, R.A.F., son of the late Loudoun Francis MacLean, C.I.E., and Mrs. MacLean, of 9, Longfield Road, Ealing, and Nancy, daughter of the late Alexander Patrick Cameron and Mrs. Cameron, of Ardsheal, Kentallen, Argyll.

MAITLAND—KETTLEWELL.—The engagement is announced between Flt. Lt. Percy Eric Maitland, A.F.C., R.A.F., eldest son of Surg.-Capt. P. E. Maitland, R.N. (Retired), and Miss Alison May Kettlewell, eldest daughter of Lieut.-Col. H. W. Kettlewell, late King's Shropshire Light Infantry, of Diben House, Hythe, Hampshire.

STOCKEN—CARR.—The engagement is announced between Flt. Off. R. H. Stocken, R.A.F., son of the late Mr. and Mrs. A. H. Stocken, of Streatham, and Monica Marjorie, daughter of the late Lt.-Col. A. M. Carr, 3rd Skinner's Horse, and Mrs. Drinnan, Welby House, The Avenue, St. Margarets, Middlesex.

BIRTHS.

FULLJAMES.—In Mar. 12, at Eling House, Derby Road, Portsmouth, to Muriel (née Davies), wife of Flt. Lt. R. Fulljames, M.C., R.A.F.—a daughter.

GODDARD.—On Mar. 16, at 14, Park Terrace, Cambridge, to Mildred, wife of Flt. Lt. R. Victor Goddard, R.A.F.—a son.

GREY.—On Mar. 12, at Grafton Lodge, Guildford, to Katherine and Trevelyn L. Grey (R.A.F., retired list)—a son.

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Stability and Control Panel.

Report No. 1000, p. 33.

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THE FLYING CHARIOTS THROUGH THE FIELDS OF AIR."
(DR. DARWIN, 1756.)



(Surrey Flying Services Photograph.)

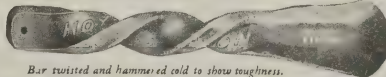
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ON ACCIDENTS AND THEIR PREVENTION.

Again one has the unpleasant duty of writing on accidents in the Royal Air Force. This duty is forced upon one by the fact that the subject has been discussed in the House of Lords and has been made the subject of an editorial article in *The Army Quarterly*, which is the most influential of military publications. Also there are certain things to be said on the subject which one has not said before.

The best way of dealing with the matter seems to be to give a general idea of what was said in the House of Lords, thereafter to give the gist of *The Army Quarterly's* views, and finally to discuss the whole question as briefly as may be.

When the House of Lords tackles any subject it invariably does so in a plain commonsense way, with a minimum of verbosity and rhetoric and with a practical efficiency which, by contrast with the methods of the House of Commons, must give any thinking person reason to thank God for our hereditary legislators. And, although few of the Peers pose as aeronautical experts, the high level of intelligence of the House of Lords is always particularly noticeable when aeronautical subjects are being discussed.

THE LORDS AND ACCIDENTS.

LORD GORELL, who was Under-Secretary of State for Air when Captain Frederick Guest was Air Minister, "moved for papers," on March 23, to call attention to the frequency of accidents in the Royal Air Force. He said that he had no intention whatever of attacking the Government or the Air Ministry, and still less of saying a word reflecting on the efficiency of the Royal Air Force. He associated himself with the Prime Minister in saying that there was no finer spirit in any Air Service in the World than in our own Air Force, and he paid a special tribute to "that great and gallant man, Sir Hugh Trenchard," adding,—

I have had the honour of his friendship for some years, and I know that on this particular subject of accidents there is no one to whom they come with more heartburning and who feels deeper grief for the loss of anybody associated with the Force.

He said that the statement made by the Prime Minister on March 10 did not fully cover the ground and had not removed all the sense of uneasiness. What the Prime Minister

had said was quite conclusive on all that concerned what he called "the personal equation." He himself did not question the Government's policy on the publication of reports on individual accidents. But he wanted information on certain technical aspects of these accidents.

THE BRAMSON-SAVAGE ANTI-STALL GEAR.

Most of these accidents occurred from certain definite causes, and a very frequent cause admittedly was the stalling of a machine when it was near the ground. He had been informed that so long ago as January, 1925, an invention was designed called the Savage-Bramson Anti-Stall Gear which had for its purpose the giving of unmistakable warning to the pilot when stalling was about to take place. This invention was tested during the early part of 1925 and twelve gears were ordered as long ago as October, 1925. Since that date it had been subjected to further tests.

He (Lord Gorell) found that there was criticism as to the Air Ministry having been dilatory in testing and possibly applying this device. He did not feel that he knew enough to associate himself with these criticisms, but he would like information on the matter.

He was informed that the device was being put into mass production in France. If so, he hoped to be told about it and also to have some of the reasons which might have weighed with the Air Ministry if they had decided not to go in for anything of the kind.

ANTI-FIRE TANKS.

A second point on which he wanted information was a device to prevent petrol tanks from bursting into flames after a crash. He was informed that there was an invention which complied with the specification of the Competition in 1921-22 and he saw from *The Times* that the inventor was now in communication with foreign Governments. He said further,—

I see further in the technical Press a long article dealing with this question of anti-crash and anti-fire petrol tanks by a writer who signs himself C. G. G., a caustic but not uninformed writer upon air matters. He criticises the Air Ministry on the same grounds of having indulged in considerable delay in the question of investigating and possibly applying these inventions. Again I do not associate myself with that criticism, but I ask for information about it.



A BRITISH LEAD AGAIN.—The Fairey III F. (Napier Lion engine) which is the newest General Purpose machine to be ordered for the Royal Air Force. The family resemblance to the history-making IIID. and to the epoch-marking Fairey Fox is noticeable. The III F. is said, in India, to have a speed of 140 miles an hour, but one believes that it is in fact a good deal faster. Consequently the III F. is by far the fastest machine of its class in Service. The type can be used either as a two-seater or a three-seater. This particular photograph was taken at the R.A.F. Pageant at Delhi. In England the machine is still a secret. The Fairey Company is to be congratulated on again making history by producing a British aircraft which leads the World.

THE GHOUlish PRESS.

The third question Lord Gorell raised concerned "the ghoulish and horrible procedure of the Press in relation to accidents." He said that there had been accidents quite recently where the members of the household of a flying officer who were passing the time in quiet had been disturbed by a telephone message, or in another case by a knock at the door and the visit of a reporter, and in each case the relative, sometimes the wife, sometimes the father or mother, was asked without any preliminary warning for a photograph of the husband or son for publication because he had been killed that afternoon in an accident.

This had occurred before there was any possibility for the Air Ministry to communicate with the relatives. He would ask the Air Ministry whether they could not use their great influence to appeal to the Press to suspend publication of details and names, and certainly not to go to the relative's house in this way until the Air Ministry had had the opportunity of communicating the facts to the relatives in a proper manner.

He would further venture to appeal to those noble Lords connected with the Press that they at any rate should give instructions to the staffs of the newspapers which they controlled to adopt this procedure. There was no question of suppressing information but only of delaying it long enough to allow of proper warning for the relatives and to spare them the added pain of a tremendous shock.

The only other point he wanted to make was that the public were apt to confuse accidents which happened sometimes through necessary military manœuvring in the Air Force with the general question of safety in the air. Anything that the Government could say to show the wide discrepancy between Service and Civil Aviation would be a great help in giving a general sense of safety in the air with regard to Civil Aviation.

THE OFFICIAL REPLY.

THE DUKE OF SUTHERLAND, replying on behalf of the Government, as Paymaster-General, said that he was glad that Lord Gorell agreed as to the inadvisability of publishing statistics of accidents and the reports of inspectors of accidents. He emphasised particularly the point that witnesses, many of them very junior officers or airmen, could not be expected to give evidence possibly reflecting adversely on their seniors if they knew the reports were to be made public.

Under present conditions these reports were made direct to the Secretary of State by the Inspector of Accidents who was a civil official and free to criticise everyone in the Air Force, from the highest to the lowest, and free to examine any witness who might throw light on the accident. This inspector's duty would also be impossible if his reports, instead of being privileged documents, were to be published broadcast.

Further he pointed out that mere statistics would be of no value to Parliament or to the public. But he assured their Lordships that, despite criticisms in the Press and "in another place" (meaning the House of Commons), the fullest statistics had been kept ever since the War and that the whole problem was under constant review from every angle.

As the Prime Minister had said, no particular type of machine and no special station or unit was more prone to accidents than others. Man had conquered the air to the extent of being able to fly, but he had not overcome the law of gravity nor the liability of human nature to occasional error.

He said that there had been a constant improvement from 1921 to 1925 in the ratio of accidents to hours flown, whether one considered fatal accidents or accidents causing injuries or accidents only damaging machines. The actual number of accidents or of lives lost was not a fair basis of comparison nor was comparison with other countries. He assured their Lordships that from very confidential figures, which could not be published, our record was a good deal better than that of other countries.

THE PSYCHOLOGY AND PHYSIOLOGY OF PILOTS.

The Prime Minister had dealt exhaustively with the psychology of pilots and had indicated how narrow was the border-line between enforcing reasonable precautions and, on the other hand, imposing restrictions that would undermine the pilots' moral and destroy the fine spirit existing to-day. Unnecessarily dangerous flying was forbidden.

Pilots were constantly under supervision by senior officers of the R.A.F. Medical Service, who were fully alive to the need for detecting incipient physical unfitness, strain or staleness.

Reckless flying was checked. Since last Summer four officers had been court-martialled for reckless flying. Two had been convicted and two acquitted.

Also a thorough system of maintenance and inspection of aircraft existed, and its effectiveness was proved by the small proportion of accidents due to mechanical defects. Training was progressive and not hurried and was continued when pilots were promoted from the training type of machine to Service types.

Abstemious habits were enforced by regulations and inculcated by example. After all, among more than 2,000 officers, human nature being what it was, there was bound to be an individual case of intemperance now and then. But in not one single case had indulgence in alcohol been proved to have caused or contributed to an accident. The average wine bill of pupil-officers of the four Training Schools in England was well under £1 a month and the average wine bill of officers with squadrons was but little in excess of that.

On the subject of the reporting of accidents in the Press he earnestly hoped that it might be possible in consultation with the Press to devise a procedure which would save pain and anxiety to the next of kin of flying personnel. All this was required was a short delay in the publication in the Press and he hoped that such an arrangement would be possible.

THE TECHNICAL POINTS.

Turning to more technical subjects the Duke of Sutherland said that the establishment of squadrons was being increased so that in future there would be one fitter and one rigger per machine and in addition there would be one storekeeper to every flight. This would relieve the Flight Sergeant and Flight Commander of a certain amount of office work and help them to supervise flying and maintenance. Extra cleaners would be allowed, so as to relieve the technical trades of purely manual labour.

Air Officers Commanding, and unit commanders, were continually demanding more and better specialist officers. Such officers could only be trained by special courses, which meant increasing the number of Flight Lieutenants and senior Flying Officers. [To keep up the numbers in the Squadrons while the others are attending courses.] The present organisation did not permit of such an increase and the question was how to produce the desired results without either congesting the permanent list or adversely affecting the Short Service scheme.

On the subject of the Savage-Bramson Gear, the Duke said that it had been found in air tests to be unsuitable for twin-engine machines (Virginias) but suitable for Bristol Fighters. The Army Co-operation Squadrons at home were being supplied with one set each for Service trials.

The slot and aileron device had been tried successfully on the Bristol Fighter. But this type was obsolescent, modifications would take a long time, and it was certain that by the time they were done there would be a new type of machine to replace the Bristol Fighter. However, modifications for test with slot and aileron control were in process on the Woodcock, Atlas and Bison. The Harrow and Hanley included this device in their design but had not yet been adopted as Service types.

As to safety fuel tanks, the Duke said that since the Competition in 1922 further experiments had been made in developing the winning tank, which was made by the India-rubber Gutta Percha and Telegraph Works Co. Ltd. [of Silvertown]. Owing to difficulties which were met in the experiments definite proposals had not been received from the firm until 1925.

A development order was placed immediately for twelve experimental tanks. But in spite of considerable pressure by the department concerned it was not expected that the twelve tanks would be delivered for another two months.

In the meantime the department was testing two other designs. One was an ordinary tank wrapped in a fabric cover, which was unlikely to be adopted as the covering appeared only to stop small leaks and the tank did not appear to be either crash-proof or bullet-proof. The other was a design by Major H. H. Evans which also claimed to be proof against incendiary bullets. Tests on both these designs were proceeding. It would be premature to give any indication of their capabilities at the moment.

The department was making every effort to obtain a tank which would give adequate security.

As to parachutes, which Lord Gorell had not mentioned, the Duke said that the general policy had been adopted that all personnel should carry parachutes. But people must realise that parachutes could only save life in certain circumstances. In collisions, fire in the air, or failure of the aircraft at a certain height, the parachute afforded a means of reaching the ground safely. On the other hand, in stalling or spinning low down there might not be time for the pilot or other personnel to get out in time for the parachute to open.

Finally he said that the Air Ministry did realise the importance of impressing on the public the difference between civil and military aviation.

CAUSES AND NOTS.

LORD THOMSON stated what were in his view the causes of accidents and what were not. Among the "nots" he placed definitely drink and the use of old machines. He said that drink bills in the R.A.F. were a good deal lower than they were in the Army in his day, and that some of the

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older types of machines were quite as safe as anything that was new. As to the senior officers at the Air Ministry, he knew that every one of them was a practical airman.

He said that the omission to use devices which automatically prevented crashes was also not the cause of accidents. These devices had been given full attention and he did not know any foreign air force which had fully adopted them. But he thought it was true to say that in the matter of safety devices Science was not keeping pace with the enormous and rapid development of Aviation.

As to the causes of accidents he said that military aviation was inherently dangerous. It had 100 per cent. of the dangers of war in time of peace. The Air Force was an insurance against war and aviators had to be trained to concert pitch and live at concert pitch. He added "the bad military airman is a gift to a skilful airman."

Our men must be trained in the most dangerous evolutions. Their qualities were courage, skill, and quick decision; and, like most people, they were apt to suffer from the vices of their qualities. A great many of them were reckless. To his mind it was a proof of the virility of our race to-day that we could find such numbers of young men ready to take on the work of military airmen.

THE MARQUESS OF LONDONDERRY, who was Under-Secretary of State for Air in 1920-21, when Mr. Winston Churchill was doubling the part of Secretary of State for War and Air, expressed his gratitude to the other speakers for throwing light on the whole question.

LORD GORELL thereupon withdrew his motion—which does not mean that he was convinced by the official reply, but merely that he had elicited all the information available.

AN UNFRIENDLY CRITIC.

We may now turn to *The Army Quarterly*. In the editorial article the statement is made that according to an answer in the House of Commons error of judgment on the part of the pilot is considered to be the cause of two-thirds of Air Force accidents. The article says:—

Without a detailed knowledge of the methods of Air Force administration, it is not easy to say why these errors of judgment are apparently so common. This knowledge is only possessed by those responsible for the administration, and this responsibility in practice is a continuous one because Air Council appointments and higher commands in the Air Force appear to circulate amongst a limited number of officers. Outside this circle no information is made public from which any accurate deductions as to the administration of the Air Force can be made.

The article further says:—

Parliamentary questions have not been particularly productive in supplementing knowledge. They have elicited the number of pilots, but they have not procured information as to the average amount of flying a pilot carries out, or the actual number of officers regularly employed as pilots as compared with the number employed on other duties but possessing and retaining a pilot's qualification by virtue of occasional flights—nor is it known outside the Air Ministry the extent of the practice flying which entitles an airman to retain a pilot's qualification.

If there is to be any intelligent outside criticism of Air Force administration, it is clear that, in addition to a knowledge of these points, a detailed analysis of the circumstances of each accident should be available. It is impossible to form a sound opinion as to the cause of any particular accident unless one is aware of the various contributory causes, e.g., the type of machine which crashed, its age and design, the age of its pilot, his flying experience and recent flying practice, the amount of recent flying in the unit to which the machine belongs and the way in which the maintenance of the machine has been carried out.

Unfortunately, information of this kind is not given to the public, and there is some doubt, in view of an answer to a question in the House of Commons given by Mr. Leach, Under-Secretary of State for Air in the late Government, as to the extent to which important points such as these are examined at the Air Ministry. (Mr. Leach stated that such information would involve very lengthy research into past records.)

In view, therefore, of the inadequate nature of the available information it is only possible to form any opinion as to the reasons for so many regrettable accidents on deductions based on such facts as come to light.

It is noticeable, for example, that there is frequently a rush of accidents in July, August and September, which are the best months for flying. It is reasonable to suppose, therefore, that much of the annual flying practice is concentrated in these months. If this is the case, two possible reasons for the numerous accidents suggest themselves. First, do the personnel get sufficient regular practice during the remainder of the year to enable them to enter upon this active period of flying in a high state of efficiency? And, secondly, are they called upon during this period of three months to do an amount of work which induces either overstrain or casualness?

It is suggested, too, that it is possible—judging from the reports of some recent accidents—that the maintenance organisation is not all that could be desired. A squadron leader has an amount of work which makes it very difficult for him to attend personally to detail in the maintenance of the machines under his command. He has, therefore, to depend largely upon his flight commanders for the efficiency of their machines, and it is conceivable that some of these officers have not the necessary technical knowledge to carry out the task satisfactorily.

During the war there was attached to every Air Force station an engineer officer with the requisite technical knowledge who was held responsible for the condition of the machines. It is suggested that such an officer's services might well be utilised in time of peace.

Finally, as regards machines, it seems doubtful whether safety is receiving its share of the already very small Research vote. We cannot face an extended casualty roll arising from machines of improved performance but of greater risk. Increased safety must march with increased speed and load.

ONE'S PERSONAL OPINIONS.

The one point which stands out most distinctly both in the discussion in the House of Lords and in the article in *The Army Quarterly* is that a very large proportion of the accidents in the R.A.F., fatal or otherwise, are attributed to errors of judgment. One uses the word attributed advisedly because there is a vast difference between attributing an accident to a certain cause and that alleged cause being in actual cause.

One's own fixed opinion is that a great many of the deaths which are attributed to an error of judgment on the part of the pilot ought rightly to be charged to an error of judgment, amounting to criminal negligence, on the part of the Technical Departments of the Air Ministry, and more particularly of whatever department, or departments, may be responsible for experimental work,—for an error of judgment may be due either to recklessness, ignorance, inattention, or negligence, or to inexperience, or to lack of intelligence.

This technical error of judgment consists in compelling the Contracts Department to order for the use of the Air Force machines which are either inherently dangerous in themselves or are not equipped with devices which would make such machines reasonably safe in the hands of an ordinarily intelligent pilot of average skill and experience.

We have got so into the habit of thinking of flying as necessarily a dangerous occupation that most of us, more particularly the technical experts at the Air Ministry, are content to accept as an error of judgment on the part of the pilot a happening which simply could not happen if the machines were properly equipped or properly designed for safety.

A SIMPLE ANALOGY.

Perhaps one can best explain precisely what one means by a motor-driving analogy which almost anyone can understand. Years ago many of us became accustomed to driving heavy cars with brakes acting only on the back wheels (or drums and/or through the propeller shaft), and general with smooth or nearly smooth tyres. We have become so accustomed to driving these cars that we know exactly what to do with them on different surfaces in different degrees of slipperiness. Without waiting until the car skids we call tell by a sort of developed instinct that we are on a slippery surface and we diminish our speed accordingly. Also, in showery weather or in damp weather, we know that at the end of a nice dry stretch of road we may find a wet slippery corner. Also we know that in the Autumn we shall find slippery patches of decayed leaves under trees, and so forth and so on. And so we keep our cars on the road and out of collisions with other cars purely by judgment.

Of late years car manufacturers have produced front wheel brakes and tyre makers have produced excellent non-skid tyres. Also cars are very much lighter for their power and speed than they used to be, and do not "carry their way" as the old heavy cars do. With a combination of these and other improvements the modern motorist with little or no experience can drive fast up to a corner, jam on his brake and get round without skidding. Or he can drive fast up to a cross-road and stop in time without any fear of colliding with anything that is crossing his path.

But,—put one of these modern motorists onto one of our heavy, smooth-tyred cars with back-wheel brakes only, and at the first slippery corner which he takes at his habitual pace he will be across the road and into the ditch on the other side, or into another car, before he has time to think.

That crash would be purely an error of judgment on the part of the driver. But it would be of a kind which should be prevented mechanically.

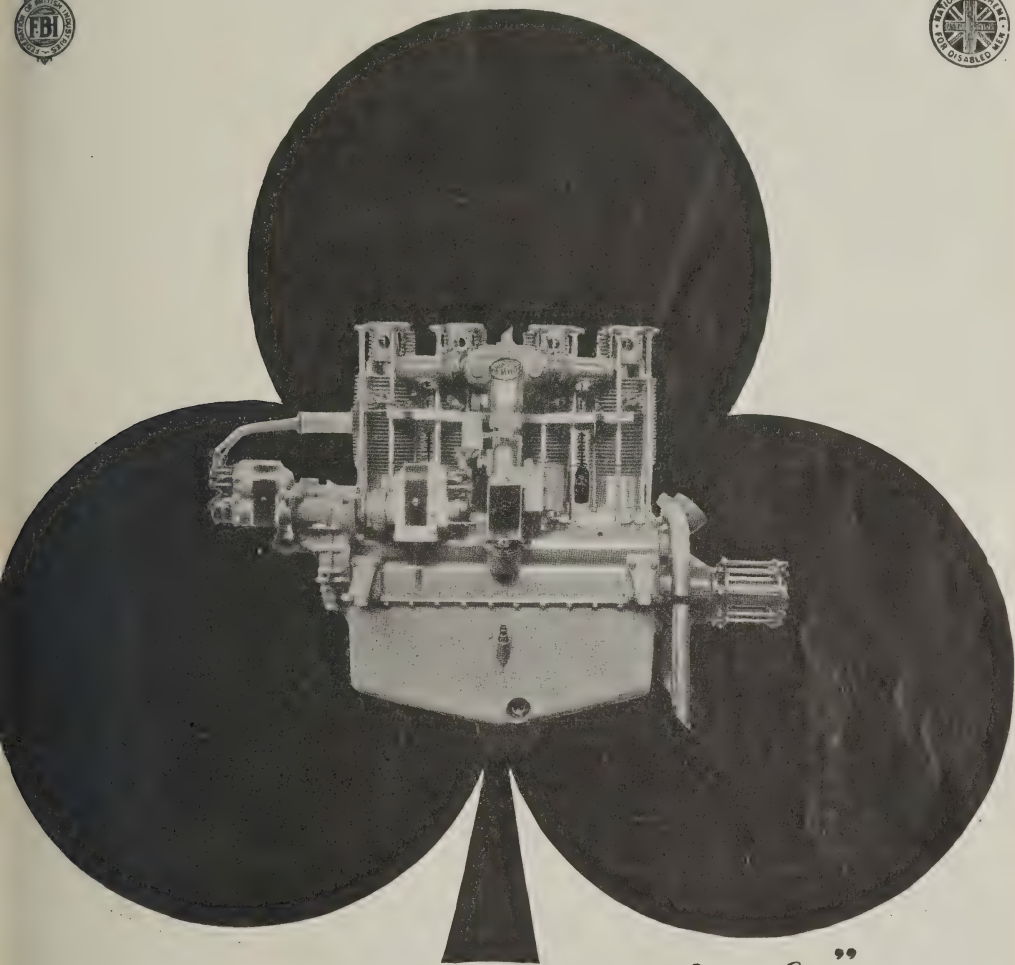
Now that is almost an exact analogy between the aeroplanes our people have to fly and the aeroplanes which they would be flying if only the technical people were less obtuse. The old experienced pilot knows from the feel of his machine that it is on the verge of stalling just in the same way that the old experienced motorist knows from the feel of his car when it is on the verge of skidding. The only difference is that when the aviator gets that feeling he increases his speed and when the motorist gets it he slows down.

In each case the experienced man avoids a crash. And the inexperienced man collects it.

It is just as idiotic to compel pilots to fly machines without anti-stall gears, and without controls which give proper command over the machine below stalling speed, as it would be to make front-wheel brakes and non-skid tyres illegal.

AVAILABLE STATISTICS.

One quite agrees with the official objection to publishing statistics about R.A.F. accidents. But there is one set of statistics which is really useful, and it can be obtained



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by anybody who takes the trouble to go through the list of accidents in conjunction with the Air Force List, or even to study obituary notices published in *THE AEROPLANE*. That is the statistics for the length of experience that the dead pilots have had. Those statistics will show definitely that by far the greater number of accidents occur to young pilots without very much experience.

There is nothing wrong with the R.A.F. training. It is better than the training anywhere else in the World. But after a man has been taught all that he can be taught there is still far more for him to learn from experience. And the people who are killed mostly die in the course of getting that experience.

Naturally, once in a while an old experienced pilot is caught napping, just as an old experienced car driver once in a while gets caught out by an unexpected patch of slippery road, or through having his attention distracted by something that is happening. But in the great majority of cases it is the men without experience who have the crashes.

All of which goes to show that these crashes which are called errors of judgment are of the kind which certainly would be errors of judgment on the part of experienced pilots, but are simply due to lack of experience on the part of young pilots. And the whole point of this argument is that the initial cause of these accidents, which is almost always stalling, never ought to have anything to do with the pilot's judgment.

REMOVING RESPONSIBILITY.

The pilot ought not to be allowed to judge whether his machine is on the verge of stalling or not. He ought to be told definitely by mechanical means that the machine is on the verge of stalling.

Besides telling the pilot, the anti-stall gear ought to take charge of the machine and prevent it from stalling. That is to say, the apparatus ought to be a stall-preventer as well as a stall-indicator.

But, as the pilot may, particularly wish to stall the machine, as is necessary under certain conditions, he should have the power to overcome the anti-stall gear, and the machine ought to be so equipped that it is still under control when stalled.

A stall indicator which takes control of the machine and itself can be controlled already exists in the Savage-Bramson gear, and the Handley Page combined slot-and-aileron control gives control over the machine after it has been stalled. So there is no reason why machines so fitted should not be used throughout the Air Force.

It is true that the slot and aileron control still needs to have its operating mechanism improved. But that would not take long if the job were tackled seriously.

On the other hand the anti-stall gear can be fitted to any existing machine in a day by a couple of competent mechanics. Possibly it also may be open to improvement. But even in its existing state it is quite good enough to save a great many lives in the Air Force. And yet the experts go on arguing about it.

THE CONCEPT OF THE EXPERT.

In allocating the blame for not adopting these safety devices one does not put the whole blame on the expert scientists at the Air Ministry,—though they are solely to blame for the delays in the experiments. A great deal of the blame should be put upon the expert test pilots who have had to test the devices as part of their duties. For if they agreed on the subject the Air Ministry experts would be compelled to act.

One has heard from pilots the most absurd and contradictory reasons for not recommending the Bramson-Savage anti-stall gear, for example. One man, with good hands, will object that the thing kicks so hard that it pulls the stick out of his hand and puts the nose of the machine down in spite of him.

Then, when the mechanism has been adjusted to give less kick, another experienced if ham-handed pilot will say that the thing is no good because it does not give enough kick to attract his attention. And neither of them probably has taken the trouble to discover that with no trouble at all the mechanism can be adjusted to give just as much kick as he himself likes.

THE HATRED OF SAFETY.

All this is quite in accord with one curious aspect of human psychology. That is the constitutional hatred which the expert has for anything which makes for safety.

The expert performer is always so jolly sure that he can trust to his own skill that he hates anybody to invent anything which will enable the ordinary common or garden mortal to perform as well as he does himself. The feeling may be unconscious but it is perfectly definitely there.

One remembers, something over thirty years ago, when one used to push a bicycle rather fast, that one scorned the use of brakes or free-wheels on bicycles. The view of the

experts was that if a man could not hold a machine down a mountain-side by sheer back-peddalling, he ought not to be trusted on a bicycle. And that if he could not keep his legs going round all day, but liked the idea of resting with a free wheel, he was not fit to be called a cyclist.

Similarly in the early days of motoring we scorned non-skid tyres, because then the bad driver was able to drive as fast on a slippery road as the experts did.

The experts fought against detachable rims and detachable wheels, because then the unskilled man was able to change a punctured tyre as quickly as an expert could. They fought against Stepmey wheels, and even against carry spare wheels, because they liked to display their skill in fitting new tubes to the tyres.

Again it is only within the last three or four years that front-wheel brakes have been a standard fitting. Yet the other day one came across an Isotta-Fraschini of early 1911 with quite perfect front wheel brakes. Why has it taken thirteen years in this country to do what the Italians were doing then? The answer is simply because our motor-car experts have been as utterly stupid as the Air Ministry experts are being to-day.

You can go right through the list of every human improvement. Hot and cold water in bedrooms was decried by architects as being unsanitary, because the pipes communicated indirectly with the sewers. Vacuum brakes were opposed of railways because they might go on too strongly. Outside staircase fire escapes were opposed on big buildings because people might climb up them as well as down them.

Every mortal thing that has ever been introduced to make life more comfortable or safer has been opposed by the experts simply because they are experts.

The expert is psychologically opposed to every improvement either because, as already said, it enables the inexperienced to do as well as he does himself, or because he did not himself think of the idea first. The sooner the Air Ministry gets that idea into their heads the sooner the Air Force will have decently safe machines to fly and the sooner the Air Staff will be able to diminish the number of those painful little documents beginning, "*The Air Ministry regrets to report*"

ON OTHER PEOPLE'S VIEWS.

As to the debate in the House of Lords, Lord Gorell put his case very well indeed. Incidentally one would like to thank him for the epithet "a caustic but not uninformative writer upon air matters." One asks for nothing better than an epitaph.

The Duke of Sutherland's reply was just the plain straightforward honest statement which one would expect from him. His reference to man having conquered the air recalls the remark in an American paper that "The trouble about man's conquest of the air is that the air refuses to stay licked. That puts the case in a nutshell."

As to checking the recklessness of pilots, to which he referred, the trouble is that it is very seldom the reckless pilot who is killed. As a general rule the reckless pilot has some unholly skill or unnatural luck which saves him from killing himself. It is much more often the cautious but inexperienced pilot who gets killed.

Nobody has a greater respect for the R.A.F. Medical Service than one has oneself, but the constant supervision to which the Duke of Sutherland referred is no guarantee against accidents of some kinds. In their insistence on perfect eyesight the medical people are a little apt to overlook the still greater desirability of intelligence.

Personally one would very much rather fly as a passenger with a pilot with one eye plus real intelligence and experience, than with a pilot who has two perfectly good eyes with a vacuum behind them. One recalls particularly one brilliant war-time pilot who had only one eye and a pronounced appetite for alcohol, of whom it was said that he always landed perfectly even when he was definitely drunk because having only one eye he could not see double. (To prevent any misunderstanding one may say that the said pilot is no to-day either in the Air Force or in Civil Aviation, and that for all one knows he may be dead.)

Which brings one naturally to the question of alcohol in the Air Force. Undoubtedly it is grossly unfair to suggest that there is an inordinate amount of drinking in the Air Force. Wine bills prove nothing, because if a man has the money he can always get as much drink as he likes outside the mess, and can keep his own private store of liquor—especially if he lives outside the station. But, quite apart from that, the average Air Force officer is very abstemious.

Nevertheless, one would like to see individual commanders of units definitely forbidding the consumption of spirits before dinner-time. The "pink gin" habit, largely inherited from the R.N.A.S., who acquired it from the Navy, is no good to anybody. Quite possibly it may not have even had any influence in any accident. But it is not conducive to general efficiency. It wastes time and it does not improve the intelligence.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

BIG MACHINES AND STALL INDICATORS.

One of the most remarkable statements in the Duke of Sutherland's reply was that the Savage-Branson Anti-Stall Gear had been found in air tests to be unsuitable for twin-engined machines (Virginias) but suitable for Bristol Fighters. The test pilot or pilots who came to that conclusion really ought to be medically examined—for intelligence though not for eyesight.

There is some excuse for the expert pilot not wanting to be bothered with a stall indicator on a light machine which he happens to know intimately. But there is every possible reason for using such an indicator on a big heavy machine which shows no sign of stalling till it is actually stalled.

It is particularly important to indicate that such machines are on the verge of stalling when turning. And one does not believe that any amount of skill or experience will tell a pilot by the feel of the controls when he is near stalling on a turn. The only warning he can get is from his air-speed indicator and in certain positions of the machine that is quite likely to give a false indication.

Even with a machine which does not nose-dive and spin if stalled when flying straight, like the Fokker for example, a stall indicator is advisable, because when a machine is stalled, although it may be under full and proper control, it is descending more rapidly than it would if gliding forward without stalling. And it is very useful to have such an indicator.

THE ANTI-FIRE TANK SCANDAL.

On the subject of the anti-fire tanks there is a great deal to be said which perhaps one had better not put into print at the moment. One would like to know just exactly what has been done since the Air Ministry "determined to develop" the Silvertown company's design. And also, precisely what has the Department concerned done in "making every effort to obtain a tank which will give adequate security both in accidents and enemy action."

If the Air Council will inquire closely they will discover some very curious and not at all creditable facts.

Lord Thomson's suggestion that some of the older types of machines are quite as safe as anything new is perfectly correct. But one feels inclined to put it the other way and say that some of the new machines are quite as unsafe as the older types, thanks to the fact that, as Lord Thomson said, "Science in the matter of safety devices is not keeping pace with the enormous and rapid development of aviation."

"NEON" AGAIN.

"Neon's" red light, though not in itself very illuminating, has certainly attracted attention, as red lights generally do. The latest aid in dispelling "The Great Delusion" created by "Neon" comes from Mr. H. T. Vane, of the Napier Company, who writes:—

On page 194, there is a specific reference to the Napier Company. In setting out the number of people required to build aeroplanes and aero-engines, "Neon" quotes, from the "Hearings" before the Morrow Commission in America the statement that the Napier Company require 1,700 men to produce 15 aero-engines in one month. But the author does not state the date of this, nor that in addition to aero-engines, the Napier Company up to 1924, were building motor-cars as well.

If he had troubled to obtain real facts, as showing the advance that has been made in aero-engine construction in the last few years, he would have found that the Napier Company employed in 1925-6 1,600 men and produced 50 complete engines in one month, in addition to which large numbers of spares were manufactured, equivalent to a further 15 engines per month. Therefore the Napier Company could produce from their factory at Acton, with 1,600 men, 65 Napier Lion engines per month, when they were required.

Then, when referring to the splendid flight of Commandante Franco from Spain to Buenos Aires, when the South Atlantic Ocean was flown non-stop for the first time, he decries this flight from the point of view that Franco did not fly back. But he has not troubled to discover the reason Franco did not return by air.

We had some interest in the flight as Franco used Napier engines, and I can inform "Neon" as an absolute fact that the reason Franco did not return by air was, not that the machine was not capable of the flight, but that he was ordered by his Government to hand the machine over to the Argentine Government as a present and return by boat.

As he had to present the machine to the Argentine Government it will be obvious that he could not possibly have flown back with it.

He also refers in a deprecatory manner to that splendid flight by four Royal Air Force machines (Fairey III.Ds), each fitted with a Napier engine, from Cairo to Cape Town, back to Cairo, and thence to England.

He compares the time taken by them with that of a tramp steamer. But again he deludes his readers by omitting to tell them that the flight was not made to enable them to get from one spot to another as quickly as possible, but was carried out to survey the possibilities of the district as an air route.

After reading the book one can gather why the author prefers to remain anonymous. And having paid 12s. 6d. for it one can also understand where the great delusion occurs.

The criticisms which this book calls for will no doubt prove the finest advertisement Aviation has ever received.

"THE ARMY QUARTERLY."

The editorial article in *The Army Quarterly* needs very little reply. As a rule everybody connected with the Army is entirely sympathetic towards the Air Force and the Air Ministry. But, unless one misjudges him grievously, the writer of that article, though sympathetic to the personnel of the Air Force, is personally hostile to the Air Ministry and all its works.

There is a distinct suggestion in the whole tone of the article that the methods of the Air Council and of the Air Staff and of everybody else at the Air Ministry are muddled, headed, or at any rate lacking in intelligence. And there is an almost peevish tone about the complaint of the inadequacy of the information supplied by the Air Ministry about accidents.

The reply to the question as to whether the personnel of the R.A.F. get enough practice during the rest of the year to be fit for the more active period of flying in July, August and September is simply that they do all the flying that the hours of daylight and the state of the weather permit, and that during the three generally good months of the year they certainly do not do any more flying than is good for them.

The suggestion that the maintenance organisation is not all that could be desired is silly. One cannot remember an accident which could be traced to bad maintenance.

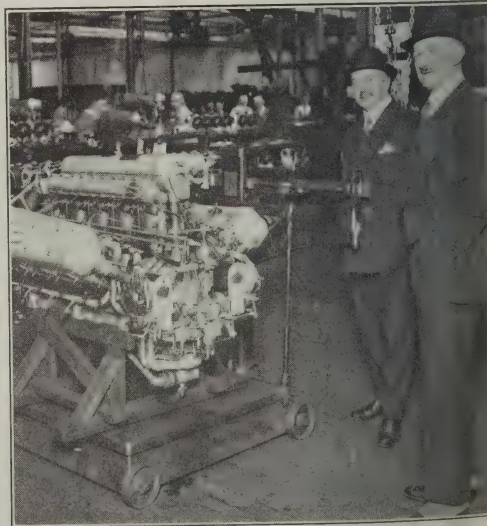
The suggestion that a squadron leader ought to attend personally to details in the maintenance of his machines is equally silly. That is the job of the officer appointed to the squadron for engineering duties. The squadron leader who spends his time inside his machines instead of inside his office is generally a nuisance, and his squadron is generally inefficient in more important matters.

How little the writer of the article knows about his subject may be judged by the implied suggestion that in these days there are no engineer officers at Air Force stations as there used to be during the War. The truth is that the average R.A.F. officer knows more about his machines and their equipment to-day than the engineer officers did during the War. And those officers of the R.A.F. who are appointed specially for engineering duties really are specialists at their job.

But one forgives the writer of that article for the on phrase with which he ends his attack: "Increased safety must march with increased speed and load." If the Air Council will have that sentence printed in letters of gold and stuck up as a motto in the offices of all their technical experts we may make some progress.—C. G. G.

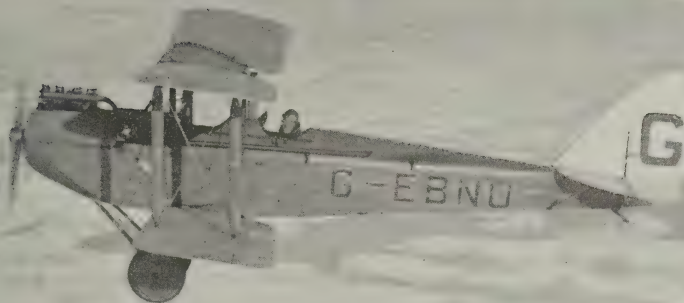
BOURNEMOUTH EASTER AIR RACES.

The closing date of entries for the Easter Air Races at Bournemouth is Thursday, Apr. 7. Particulars and Entry Forms can be obtained from the Royal Aero Club, 3, Cliford Street, London, W.1.



SEEING THE LIONS.—Air Vice-Marshal Sir John Higgins, K.B.E., C.B., D.S.O., A.F.C., the new Air Member for Supply and Research (on right), inspecting the Napier Works with Mr. H. T. Vane, C.B.E., the Managing Director of D. Napier and Son Ltd.

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AIR TRAFFIC IN GERMANY.

The lecture by Major Martin Wronsky, one of the directors of the Deutsche Luft Hansa A.G., given before the Royal Aeronautical Society on Mar. 24, attracted the largest audience that one has yet seen at any of the Society's meetings. The seating accommodation in the lecture theatre of the Royal Society of Arts was packed, and a large number of late-comers had to be content with standing room.

Whether this unusual attendance was in some part due to "Neon's" recent outburst as suggested by Col. The Master of Sempill, or was entirely caused by the interest of the subject, it is at least evidence that there is a definite public interest in aviation, for many of those present were by no means normal attendants at regular aeronautical meetings of any kind.

THE PAPER.

In an outline of the history of German air traffic organisation, Major Wronsky said that the Deutsche Luft Reederei (German Air Traffic Co.) was founded by banking and industrial interests as far back as 1917 to study the possibilities of commercial aviation, and in 1919 opened the first air line on the Berlin—Leipzig—Weimar route. This was soon followed by other internal lines, which were successful in operation, but incurred severe financial losses.

In 1920 the Luft Reederei asked the German Government for financial support and was granted a subsidy on the distance flown. It thus became the first air transport concern to receive a subsidy in Europe. This evidence of Government interest in civil aviation induced a number of other companies to begin operations, almost entirely on German internal services, rather in competition one with another than in co-operation.

Of these new companies only the Derluft (German Russian Air Traffic Co.) had continued to exist. This Company, formed in December, 1921, with one half of its capital of 25,000,000 marks provided by the Deutscher Aero-Lloyd and the other half by the Russian Government, was associated with the Luft Reederei for intercommunication between Germany and Russia.

By the Spring of 1923 economic difficulties combined with the pressure of the Nine Rules restricting the capacity of German aircraft had forced the majority of the smaller air traffic concerns to amalgamate into a concern known as the Deutscher Aero-Lloyd. This was supported by all the German aeroplane constructors except the Junkers Werke, which formed a separate concern known as the Junkers Luftverkehr A.G.

THE FORMATION OF THE LUFT HANSA.

In the Autumn of 1925 negotiations for the amalgamation of the Aero-Lloyd and the Junkers began and in January, 1926, the Deutsche Luft Hansa was formed. There were a number of local air traffic companies other than Luft Hansa but these were not operating companies—they were rather local associations aiming at the arousing of public interest in air traffic.

The Luft Hansa was backed by German trade, commercial and banking interests, also by the Imperial and State Governments, municipalities, etc. On the board of directors there were in addition to business men representatives of the Imperial and State Governments. Beside the board of directors there was a Technical Advisory Committee consisting of leading members of the Aircraft Industry.

As in other countries German commercial aviation was not yet self-supporting. Traffic receipts averaged about 30 per cent. of the total costs leaving 70 per cent. to be provided from public funds. The subsidies received in Germany came partly from Imperial and partly from State and municipal sources. Generally speaking the Imperial

Government subsidised services between Germany and other countries and the State Governments and municipal authorities subsidised the internal lines serving their own localities.

GERMAN CIVIL AIRCRAFT.

The German air line operations of the summer of 1926 were carried on with about 120 aeroplanes, among them being products of all the German aircraft constructors. All those available in April, 1926, were machines built under the restrictions of the Nine Rules, and consequently were almost entirely single-engined machines with maximum capacity of six passengers. The only exception to this was the Junkers G.24 three-engined type, which by a special concession was allowed to be used on certain lines in February, 1925.

The conclusion in May, 1926, of the Paris Agreement gave German constructors freedom in the design of civil aircraft. The time which had elapsed since then had not sufficed for any extensive production of more suitable aircraft, but the German industry had by now placed four serviceable multi-engined types at the disposal of Luft Hansa—the Junkers G.24, the Albatros L.73, the Rohrbach Roland and the Dornier Wal. (This latter is not in actual service but apparently is likely to be.)

The multi-engined types were used on the International services the internal lines still depending mainly on single-engined types.

TYPES OF CONSTRUCTION.

The use of all-metal structures, and of cantilever wings was characteristic of German aircraft. The extensive use of metal monoplanes was due to the fact that in the opinion of the German technicians the cantilever monoplane was aerodynamically superior to the biplane, and to the development of metal construction which permitted of producing such monoplanes of large size.

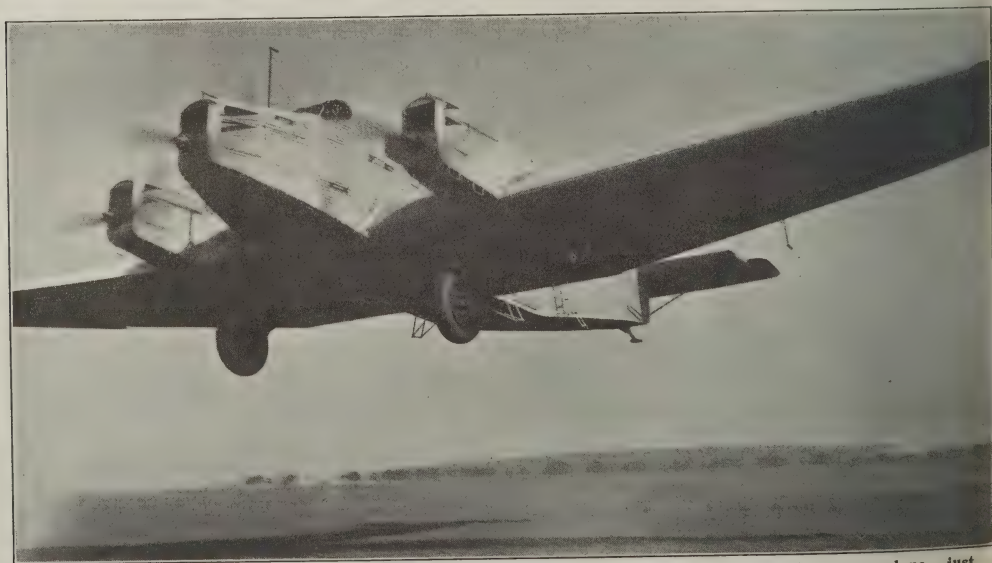
The high wing type of monoplane had the advantage of giving the passengers an excellent view, and of allowing entrance to and exit from the cabin without the use of ladders.

German experience did not yet permit of a conclusive comparison of the biplane with the monoplane on the score of overall cost as they had only recently put a modern biplane into service. The biplane had the lower first cost. All-metal machines were definitely cheaper to maintain than were wooden types, and the welded steel tube type of structure originated by Fokker and used on the Albatros L.73 was cheaper in this respect than any other type.

After a long period of testing the Luft Hansa put a number of Hawker metal airscrews into service with satisfactory results. After the abolition of the Nine Rules some structural troubles attended the attempt to use this type of airscrew on engines of high power but this difficulty had now been overcome. The Reed type had also been used with good results, but it had the disadvantage that small adjustments of pitch meant returning the screw to the manufacturer. With the Haw type such adjustments took but a few minutes.

INSPECTION AND OVERHAUL.

A competent inspection staff was maintained at every aerodrome on all machines, engines, and equipment were thoroughly inspected before each flight. After about 150 hours of flight a special detailed inspection was made and a report as to the condition of machine, engine, etc. rendered to the inspection department, which thereupon decided as to the necessity or otherwise of an overhaul. Thorough overhauls of aeroplanes were made on an average after 400/500 hours of flight. Inspection after overhaul was carried out both by the company inspector and by a representative of the German Air Ministry and the machine returned to service only after it had passed both inspections. Engines needing overhaul went to special engine repair shops where they were stripped and examined and measured for wear in every detail. After re-assembly they were tested on the bench and were passed fit for service by a representative of the Air Ministry.



A GERMAN GIANT.—The Junkers G.31 (three 310 h.p. Junkers L.5 engines), 16-18-seater monoplane, just taking-off. This type is also fitted as a sleeping car.

NAVIGATION INSTRUMENTS.

No rules as to the use of navigating instruments were yet in force in Germany. Wireless was fitted on all multi-engined aircraft, which carried special wireless operators. This was necessary because the present ground organisation made it necessary to rely on telegraphic communication.

About twenty multi-engined machines were also fitted with turn-indicators and it was intended to fit all such machines with these instruments. Big machines were to be fitted in addition with an artificial horizon and a rudder indicator.

PASSENGERS' COMFORT.

Great importance was attached to comfort. If the aeroplane was to fill its place as a high-speed long-distance machine the cabin must be comfortable as an abode for many hours. The Luft Hansa tried to give a feeling of roominess in the cabins. The L.73 had a cabin 2.5 m. (5 ft.) wide which made it possible for the occupant to move about freely. Also by a simple readjustment of the seats, the eight chairs might be converted into four sleeping berths.

Travellers by air objected strongly to the noise of the engines, and the Rohrbach Roland had accordingly been fitted with silencers and passengers could now converse without shouting.

At first the accommodation for passengers was based on the compartment of an express train, but it was now realised that a higher standard of comfort must be sought for long-distance services.

THE TRAINING OF PILOTS.

German commercial pilots were trained at the German Air Traffic School at Staaken. Before a pupil could enter this school he must have acquired an "A" grade pilot's licence, either through one of the flying training schools, or through the Sportflug G.m.b.H., an association which aimed at providing suitable candidates with elementary flying training. The "A" licence covered only the piloting of machines not exceeding 1,500 kg. (3,300 lbs.) weight and 150 kg. (93 m.) p.h. maximum speed and did not cover the commercial carriage of passengers.

At the Staaken school the prospective commercial pilot was given a thorough training both in flying and in technical subjects. A "B" licence which entitled the pilot to fly a commercial machine was granted after a minimum of 5,000 km. cross-country flying and the passing of an examination, a process normally requiring 1½ to 2 years. C and D licences were granted after further flying experience and examinations.

PAY OF PILOTS.

German pilots were paid a salary plus a fee per km. flown and received family allowances of 50 marks per month for a wife and 16 to 12 marks per child. The flying pay rate was from 5 to 8 pfennig per km.

In addition pilots received an allowance for expenses of 13 marks per day for every day spent on duty away from their home station. The average earnings during 1926 of Luft Hansa pilots who had been in service for the whole year—excluding expenses—was about 100 to 1,000 marks (£40 to £50) per month.

A premium of 100 marks was paid for each 5,000 km. flown without accident.

TRAFFIC RESULTS.

In the first quarter of 1926 German Air Traffic was suspended while the fusion of the Aero-Lloyd and Junkers concerns was being negotiated. During the Summer of that year the total length of the routes operated was 20,408 km. (about 12,650 miles) and Luft Hansa machines daily flew a distance equal to once round the World. On Oct. 16 the Winter service started—with a reduction in route distance of about 40 per cent.

During the whole of 1926 the total distance flown was 6,141,479 km. (over 3,800,000 miles) or nearly 25 per cent. more than the total for 1925.

The total number of passengers carried was 56,268, and in addition, 384 tons of luggage, 260 tons of freight and 300 tons of mail. Passengers show an increase over 1925 of 50.3 per cent. and mail of 86.4 per cent. The best mail result was given by the night service Berlin—Königsberg.

The Summer of 1926 was bad in regard to weather, but the regularity attained was satisfactory, and on a number of lines reached 100 per cent. Accidents with fatal results to passengers fell from two in 1925 to one in 1926.

INSURANCE.

All passengers including free passengers carried by Luft Hansa were insured to the extent of 25,000 marks (£1,250) in case of death, and 25 marks (£1 5s.) per day for temporary disablement. This practice was introduced by Luft Hansa without increasing the fares previously charged.

Passengers requiring further insurance might cover themselves at any of the companies' booking offices. This practice had increased public confidence in air transport, and had moved some of the insurance companies to cancel their refusal to cover aircraft accidents by ordinary policies. Luggage and freight might also be insured at any of the Luft Hansa offices.

THE AIM OF THE GERMAN LUFT HANSA.

The chief aim of the Luft Hansa was the creation of great international air lines. The advantage of the aeroplane—its speed—could only be shown to advantage over long distances with the smallest possible number of intermediate stops. Lines of this type such as London—Berlin—Moscow, Zürich—München—Vienna—Budapest, Berlin—Prague—Vienna, were already in operation, and Luft Hansa was endeavouring to secure the co-operation of other countries in such ways. Negotiations with Czechoslovakia had just been concluded, it was hoped to arrange a trans-Alpine service from Munich to Milan and it was hoped that air communication with Spain would soon become possible.

In addition to international services Luft Hansa maintained a network of internal German lines which had been the subject of criticism in some foreign countries.

This internal net served a number of purposes. It had been found that aerodromes close to the centre of a city attracted far more traffic than those some way away. The ability to reach an aerodrome easily, the opportunity of trying a short trip by a regular service was more effective in giving public confidence in aircraft than a hundred articles or lectures.

The internal German services give the opportunity for developing organisation, training personnel and gathering experience which could not be attained otherwise. And finally as various local bodies offered subsidies for services to their territories the firm could scarcely be expected to refuse them.

INTERNATIONAL CO-OPERATION.

International services such as Luft Hansa had already developed were only possible by international agreement and co-operation. The first practical example of such international co-operation was Anglo-German and it was the head of the British Department of Civil Aviation—Sir Sefton Branker—who was mainly responsible for the suggestion of an International Air Traffic Convention and for the consequent foundation of the I.A.T.A. in 1919.

Under the Treaty of Versailles the restrictions on air development in Germany were originally confined to military and naval air forces. The Conference of Ambassadors however extended the restrictions to cover all aircraft not complying with the "Nine Rules," under which German commercial aircraft were limited to a useful load of 600 kg., a maximum speed of 190 km.p.h., and a ceiling of 4,000 metres.

Despite this restriction Germany succeeded in maintaining a commercial air transport system—proof of a united and strong sense of the importance of aviation.

After five years of political endeavour Germany had succeeded in persuading her late enemies to cancel the "Nine Rules" and from May, 1926, German commercial aeroplanes became subject to no restrictions, and Germany was able to play her proper part in European air transport organisation.

The *Commission Internationale de Navigation Aérienne*, founded in 1919, was an attempt to secure international co-operation in air transportation. It was confined to Allied and Neutral States, Germany was not admitted to it, nor willing to enter it, and in the absence of German participation it was not possible to arrange for a proper European organisation of air routes.

The International Air Traffic Association (I.A.T.A.) had provided means for arranging such co-operation as a result of the change in the state of affairs which made I.A.T.A. possible, and German Luft Hansa were to-day operating joint services with most of the air line companies of Europe.

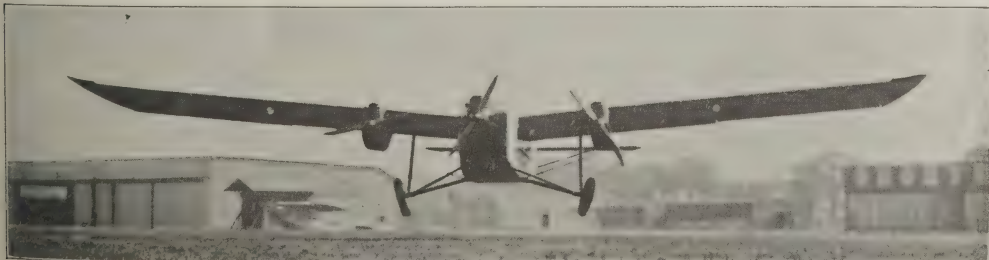
In some countries it was alleged that the German effort in commercial aviation had for its object the establishment of German air supremacy in Europe. This was a mistaken view. Germany was forced by her position and by economic conditions to play a very important part in European Air Traffic.

All the economically important long distance trans-European highways passed either North and South or East and West over German territory. How little Luft Hansa aimed at achieving a supreme position was shown by the fact that whenever it had proposed to open a new service into a foreign country the national air line of that country had been invited to a joint operation of that line.

THE DISCUSSION.

THE RT. HON. THE VISCOUNT HALDANE, F.R.S., K.T., O.M., opening the discussion, said that a sound organisation must always be based on sound first principles, and the ability to produce such organisations was part of the genius of the great nation to which Major Wronsky belonged. Air traffic tended to increase, and the cost of air transport to decrease with increasing distance of route. Short distance air traffic might become possible with the development of some aircraft such as the auto-giro, which would greatly reduce the size and cost of aerodromes. Air transport to-day was in the stage reached by rail transport in the 1840's, and those who tried to put obstacles in the way of its development might find themselves in the position of the cow on the railway line in the well-known story of Stephenson.

MR. HANDLEY PAGE said that the amalgamation of competing air



A NEW GERMAN PASSENGER-CARRIER.—The Rohrbach Ro.VIII, "Roland," commercial monoplane (three 230 h.p. B.M.W. IV engines), a number of which are used by the Deutsche Lufthansa for operation on their air lines. The Roland carries ten passengers and a crew of two.

lines into one national company in Germany was parallel to the course of events in England. He was astonished at the very high ratio of subsidy to receipts in Germany. This ratio had to fall, and would fall as the result of development, but he did not expect revolutionary developments such as auto-giros to have the desired effect. Steady progress along known lines was the most hopeful road to success.

LORD THOMSON said it was amazing that German Civil Aviation had continued to exist at all. No one in this country imagined we could make air transport pay on internal routes, and it was essential that we should develop the Imperial routes.

BRIQ.-GEN. P. R. C. GROVES regretted the paper had not been broadcast as an antidote to "Neon." The interest of the German public in aviation was a striking contrast to the British indifference and the need of the most up-to-date form of transport was vital to our Empire. The arguments of those who opposed air development was precisely similar to those put up by the anti-railway cranks a century ago, and were worthy of no more attention.

MR. F. G. L. BERTRAM remarked that the German statistics showing a steady increase in traffic were very cheering. It would be of great interest to know whether the all-metal monoplane or the biplane was the more economical type of aircraft.

CAPT. W. H. SAYERS said that it was very interesting to hear that the welded steel type of construction originated by Fokker was found the most economical in upkeep and repair. It was also interesting to realise that we were not allowed to use this type of construction

in Britain—which suggested that "Neon's" scepticism was also to be found in our Air Ministry.

MR. HERMAN VOLK said that in the course of an extensive voyage by air he had been vastly impressed by the trouble taken on the German and Dutch air lines for the comfort of passengers.

MR. M. L. BRAMSON thought that the Luft Hansa's scheme of life insurance for all passengers was the most important step yet made to establish public confidence in air-transport. He would like to know whether the Luft Hansa's multi-engined machines would fly with one engine out of action.

MAJOR WRONSKY, in reply, said that the figure of 30 per cent. traffic receipts and 70 per cent. subsidy was not specific to a German one-way international average. He could not agree that the necessity for a subsidy was sufficient to dispose of air transport's claim to being a commercial necessity. Steamships were subsidised for fifty years or more, canals did not pay to-day, and some railways were still subsidised. Transport was not developed so much to pay as to develop trade, and if air transport could create business it would justify maintenance out of subsidies.

The problem of making air transport pay was one of developing machines and of attracting traffic. The provision of comfort in every detail was of the greatest importance.

Luft Hansa and the German railways worked in close co-operation. All railway freight offices would book freight by air.

As to three-engined machines he thought they would fly on two engines in 70 per cent. of cases.

MONEY IN AIRCRAFT.

Following on the publication of the Napier balance-sheet, showing a profit of £200,000 on last year's trading, it is interesting to have some figures from the report of the famous Curtiss Aeroplane and Motor Company Inc., the leading American aircraft firm. The Curtiss report does not distinguish between the firm's income from engines and from aircraft, so that it is impossible to make a straight comparison with the Napier Company's profits, but nevertheless the Curtiss figures are worth attention.

The net earnings of the Curtiss Co., after allowing for depreciation and reserve for Federal Taxes amounts to \$413,376.69, as compared with \$150,149.28 in 1925. Apart from this the firm has reduced by \$300,000.00 a debt of \$852,000.00 to the U.S. Government, and as the balance is more than covered by real estate mortgages owned by the Company the position of the Curtiss firm is very good. How sound the financial policy of the Company has been under the direction of Mr. C. M. Keys may be gathered from the fact that in 1920 the indebtedness of the Company was over \$3,400,000.00.

During the past year, besides maintaining its place as one of the principal contractors to the U.S. Army, the firm has again become a substantial contractor to the U.S. Navy.

Another interesting point is that the Engineering Division of the firm, which curtailed its efforts about 1923 owing to the general state of the Aircraft Trade, and, one believes, owing to the peculiar methods by which the U.S. Army and Navy placed their contracts, has now been filled up to full strength and is at work on a larger volume of research and engineering development than at any time during the past five years. This is due to the fact that the policy of the U.S. Government in dealing with engineering firms has changed so completely that it is wise and business-like to spend time, thought and money in pushing forward engineering developments, instead of merely building to order.

This change of policy is based on an Act of Congress approved on July 2, 1926, which provides for the establishment of a definite five-year programme for the U.S. Navy and for the reform of the methods of contracting for aircraft.

When one considers what the Curtiss Company has done in the past five years in the way of developing aircraft design, aerodynamically and structurally, and what it has done in producing new and highly efficient engines and airscrews, in spite of this curtailment of engineering research, the British Aircraft Industry will do well to consider what the firm is likely to do when working at really high pressure for progress in design.

In his report Mr. C. M. Keys says that while this work is expensive and therefore increases overhead costs it creates assets for the immediate future which are likely to make the effort a very good investment. This is a doctrine which all our own manufacturers might very well take to heart—though it is only fair to say that many already hold such beliefs.

As to foreign trade, Mr. Keys says that no further business has been got from Great Britain. A fairly substantial initial order has been taken and partly filled from one of the South American Republics. He adds that other orders of a similar sort from South America and Asia are pending, and that it is the intention of the Company to develop seriously these foreign markets which are important in volume and have been dominated up to the present by the manufacturers of England, France and Italy selling new products and War surplus.

He adds that most Nations have now reached the point when War surplus machines and motors are no longer good enough and are becoming substantial buyers of new and

modern machines. And he says that it is therefore a logical time to push forward the development of these markets and that plans are well under way for this development.

Nobody could have a fairer warning than that. So if the British Aircraft Industry is going to get the foreign market, and is not going to let the American Aircraft Industry have them all, in the same way that the British Motor Trade let the Americans have the whole of the foreign automobile business, it is time that our aircraft manufacturers made strenuous efforts such as those already started by Mr. Robert Blackburn.

Obviously the right thing would be a concerted effort by all the members of the S.B.A.C. and the Air Ministry (as General Warner suggested in the House of Commons on March 17). But co-operation is not the strong point of the Englishman, so probably such an effort is too much to expect. At any rate Mr. Keys has given us full warning and THE AEROPLANE has passed it on to the Aircraft Industry. Therefore if we do not capture the foreign markets nobody can say that THE AEROPLANE has not done its duty and that the Curtiss Company has not played fair.—C. G. C.

LONDON FROM ABOVE.

Readers of THE AEROPLANE who have been struck by the excellent Underground poster showing London from above will be interested to know that the photographs were taken by Aerofilms Ltd., of Aerial House, The Hyde, Hendon N.W.9, which firm is associated with the Aircraft Operating Co. Ltd.

The photographs were taken from a height of 10,000 feet. And 477 photographs were joined together in mosaic form to make a map of the eight square miles shown in the poster.

This map took two years to complete, because there are but few days in the year when atmospheric conditions over London are suitable for aerial photography, and it was necessary to get all the photographs from the same height and under similar conditions of light, otherwise the photographs would have been of different quality and the shadow would have been shown in all sorts of different directions.

It is interesting to note in the Underground poster that 41 Underground stations are shown. And there is humour in the advice on the poster that to see London one must travel underground.

No doubt a good many people would like to have copies of this combined work of science and art, so readers will be glad to know that unmounted photographs of the map may be had from Aerofilms Ltd. for 6s. 6d., the size being 10 in. by 9½ ins. A larger size, 17 ins. by 16 ins., which is 6 inches to the mile, may be had mounted on card for 13s. 6d. And for those who can afford the luxury, a photograph of the same size as the print of the poster, namely 34 ins. by 34 ins., may also be had mounted on card for £4.

DELIVERANCE.

The first of the new series of high-speed seaplanes, the Gloster-Napier IV, was delivered to Felixstowe air station on Saturday. The tests will be carried out by R.A.F. personnel of the "High-Speed Flight."

The Gloster IV is expected to attain a speed of 260 m.p.h. and from the data obtained from this another Gloster-Napier will be built which, it is hoped, will be fast enough to start a chance of winning the Schneider Trophy in September.

The Supermarine-Napier S5 and the Short-built-Bristol conceived—Carter-designed—Bristol-Mercury-engined Crusader should both be at Felixstowe within two weeks. So here we are hoping.—G. D.



The Loening Amphibian Now Carries 2,500 lbs. of Useful Load.

When real hard jobs are to be done, such as, dangerous exploring, difficult photography, and the making of surveys, and for the daily grind of observation and spotting of gun fire, towing targets, launching from catapults, landing on carriers, the U.S. Government uses the Loening Amphibian,

***“The Plane that Does the Hard
Work for America”***

And the successful completion of these arduous duties has brought with it practical improvement and perfection in flying qualities, in easy maintenance, and in simplification,

**LOENING AERONAUTICAL ENGINEERING CORPORATION,
31st Street and East River, New York City, U.S.A.**

THE ROYAL AIR FORCE.

The London Gazette.

Mar. 22.

GENERAL DUTIES BRANCH.—Lt.-Cdr. V. A. I. Bradyl-Johnson, R.N., is granted a temp. comm. as a Sq. Ldr. on being seconded for two years' duty with the R.A.F. (Mar. 15); R. St. A. Malleson, Lt. R.N., Flg. Off., R.A.F., is promoted to the rank of Flt. Lt. (Mar. 8).

The following Plt. Offs. are promoted to the rank of Flg. Off.:—L. B. McGovern (Sept. 6, 1926); B. A. C. Danbury, B. W. Knox (Jan. 30); F. G. H. Ewens, E. C. L. Richardson, H. V. Crowder, W. J. M. Spaight, E. H. Collinson, M.C. (Maj.), E. Surrey Regt., R.A.R.O., C. A. C. Patton, H. A. S. Byrne (Feb. 7); J. W. Stokes, R. A. Wills, F. W. H. Hall (Feb. 18).

Wing Cdr. J. T. Babington, D.S.O., is placed on half-pay, Scale B, Mar. 9 to 30, 1927, inclusive; Flt. Lt. F. L. Luxmoore, D.F.C., is restored to full pay from half-pay (Mar. 21).

Plt. Off. C. R. McEvoy takes rank and precedence as if his appointment as Plt. Off. bore date Jan. 6, 1926, immediately following Plt. Off. C. D. G. Welch on graduation list. Reduction takes effect from Mar. 1.

The following are placed on the retired list:—Flt. Lt. J. C. Coulson (Mar. 21); Flg. Off. F. C. Jenner (Mar. 23).

The following Flg. Offs. are transferred to the Reserve:—CLASS E.—C. J. A. Delany (Mar. 21). CLASS C.—L. H. Cooper (Mar. 15).

Flg. Off. L. W. Lane, M.C. (Lt., R. Sussex Regt.), relinquishes his temp. comm. on return to Army duty (Mar. 16).

Plt. Off. C. M. Peabody is dismissed the service by sentence of General Court Martial (Mar. 10).

STORES BRANCH.—Flg. Off. A. M. Reidy is granted a perm. comm. in this rank, with effect from Apr. 6, 1926, on completion of probationary service.

MEDICAL BRANCH.—Flt. Lt. C. Palmer-Jones, M.B., is granted a perm. comm. in this rank (Mar. 23).

RESERVE OF AIR FORCE OFFICERS.—The following are confirmed in rank:—Flg. Off. on probation S. F. Woods (Feb. 17); Plt. Off. on probation V. P. Field (Mar. 7).

Flt. Lt. L. C. Shoppee, D.S.C., is transferred from Class A to Class C (Mar. 18); Flg. Off. W. A. Syme is transferred from Class B to Class C (Mar. 16).

Appointments.

Week ending Mar. 28.

GENERAL DUTIES BRANCH.—Wing Commanders A. Corbett-Wilson, to H.Q., Coastal Area, for Technical Staff duties, 15/3. C. C. Miles, M.C., to No. 10 Group H.Q., Lee-on-Solent, for Air Staff duties, 16/3.

Squadron Leaders F. E. P. Barrington, to No. 216 Sqdn., Egypt, 25/2. J. C. P. Wood, to No. 4 F.T.S., Egypt, 11/3. W. H. Park, M.C., D.F.C., to No. 25 Squadron, Hawkinge, 25/3.

Flight Lieutenants J. R. Cassidy, to H.Q., Egypt, 7/3. C. Porri, to R.A.F. Depot, Uxbridge, 24/3. A. R. Churchman, D.F.C., to H.Q., Air Defence of Great Britain, on transfer to Home Estab., 6/3. T. H. Newton, D.S.C., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 15/3. H. W. Bages, to C.F.S., Wittering, 6/4. A. E. Case, to R.A.F. Base, Malta, 22/3.

Flying Officers P. McK. Terry, to No. 480 Flight, Calshot, 17/3. A. C. Meredith, to No. 1 School of T.T. (Apprentices), Halton, 21/3. C. A. Bell and P. E. Berryman, to No. 28 Sqdn., India, 1/3. J. C. Marcy, to R.A.F. Depot, on transfer to Home Estab., 16/3. D. F. W. Atcherley, to No. 5 F.T.S., Sealand, on appointment to a Temp. Comm. on being seconded from the Army, 19/3.

Flying Officers (Hon. Flt. Lt.) V. J. Somerset-Thomas and R. W. G. Lywood, to No. 4 F.T.S., Egypt, 22/3. D. W. Gibbon, to No. 216 Sqdn., Egypt, 22/3. A. H. Willets, to No. 481 Flight, Malta, 22/3. A. D. Gillmore, to No. 208 Sqdn., Egypt, 22/3. D. S. Thomas, to Home Aircraft Depot, Henlow, 4/4. T. O. Oakes, to Station H.Q., Birmham Newton, 23/3. R. H. Rose, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 5/2. V. A. C. Ross, to No. 100 Sqdn., Spittlegate, 21/3.

Pilot Officers K. Garston-Jones, to R.A.F. Depot, Uxbridge, 17/3. H. N. C. Williams, to R.A.F. Depot, Uxbridge, 21/3. N. C. H. Barrett, to R.A.F. Depot, Uxbridge, 24/3. A. P. de Wouff de Wytt, C. E. Eckersley-Maslin, J. E. McHenderson, D. J. R. Hylton and E. G. Olson, to Aircraft Depot, India, 16/2. P. A. Moritz and H. T. A. Silcox, to No. 14 Sqdn., Palestine, 10/3. J. C. McE. Gibb, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 11/3, to No. 39 Sqdn., Spittlegate, 24/3. The undermentioned Pilot Officers are posted to No. 5 F.T.S., Sealand, on appointment to S.S. Comm. (on probation), with effect 29/3:—P. F. C. Bradley, P. D. Crocroft, R. David, R. C. Hancock, S. Hatton, G. N. S. Lane, A. G. Mace, G. W. Monk, A. G. C. Somerhough and J. E. Stuart-Lyon. C. R. McEvoy, to No. 2 Sqdn., Manston, 1/4.

MEDICAL BRANCH.—Squadron Leader H. McW. Daniel, M.D., to R.A.F. British Hospital, Iraq, 21/2. Flight Lieutenant C. A. Lindup, to Station Headquarters, Birmham Newton, 4/4. Flying Officers J. D'I. Rear, to R.A.F. Practice Camp, Weston Zoyland, 1/4. R. G. Freeman,

to R.A.F. Practice Camp, Sutton Bridge, 1/4. I. Freeman, to R.A.F. Practice Camp, North Coates Fitties, 1/4. S. F. Heatley, M.B., B.A., to Pathological Laboratory, Halton, 25/3. A. L. St. A. McClosky, R.A.F. Depot, Uxbridge, 29/3.

STORES BRANCH.—Wing Commander R. W. Thomas, O.B.E., to No. Stores Depot, Kidbrooke, 21/3. Squadron Leader H. L. Crichto M.B.E., to Air Ministry, Directorate of Equipment, 21/3. Flying Officer D. A. W. Sugden, to Electrical and Wireless School, Flowerdown 1/4.

ACCOUNTANT BRANCH.—Wing Commander C. G. Murray, O.B.E., H.Q. Accountant Office, Iraq, 5/3. Flight Lieutenant P. Hay, M.C., to R.A.F. Station, Tangmere, 17/4. Flying Officers W. E. V. Richard to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 15/3. F. J. Short, to H.Q., Egypt, 22/3.

"Hermes" versus Pirates.

The Times correspondent in Hong Kong in a message dated Mar. 23 states:—

It is officially stated that H.M. Aircraft-Carrier *Hermes* and two cruisers this morning carried out an expedition to Bias Bay in connection with recent piracies. They returned this evening. The operations were successful. No further details have been released.

Air Co-operation in the Nile Valley Manoeuvre.

A very interesting article describing the manoeuvres in the Nile Valley by the British Force in Egypt, appeared in *The Times* of Mar. 24. In the course of it the writer states:—

Both sides were well provided with aircraft, but, as in that terra and atmosphere it was impossible to hide anything from the air, it was decided not to pass on any air reports to the troops on the first morning, so that they might get the necessary practice in the general work of security and reconnaissance. The actual air reports sent to the directing staff were full and complete.

At the end of the account of the first day's operations the writer states:—

During the night White sent out an air reconnaissance. Although the moon was young and faint, the Brown aerodrome and one of the bivouacs were bombed.

In the course of his summary of the lessons of the manoeuvres the writer states:—

The Air Force co-operation with both artillery and infantry was close and good, and the single-seater fighters were used to the best advantage. Reconnaissance and bombing were carried out successfully both by day and night. The Army, however, still seems to want more practice in the orders given to its airmen.

The R.A.F. Memorial Fund.

The Seventh Annual Report of the Executive Committee of the R.A.F. Memorial Fund states that during the year 1926 the Fund continued to receive good support from the Royal Air Force, and, in a lesser degree, from the General Public.

The largest donation to the Fund was the sum of £6,995 6s. 4d., placed at the disposal of the Committee by the Air Council and representing the net proceeds of the R.A.F. Display held at Hendon on July 5, 1926.

The R.A.F. share of the profits of the Royal Tournaement at Olympia in 1926 was £1,700.

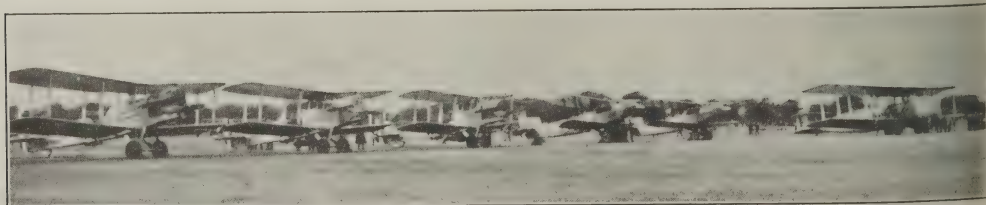
Apart from these two sums the subscriptions during the year amounted to £2,019 3s. Units of the R.A.F. contribute £1,438 17s. 5d. and the General Public including individual members of the R.A.F. A further sum of £30 10s. has been received as the result of the sale of reproductions of Flt. L. Verpilloux's pictures.

During the year nearly 1,200 cases of appeals for assistance have been dealt with, an increase of 100 on last year's total.

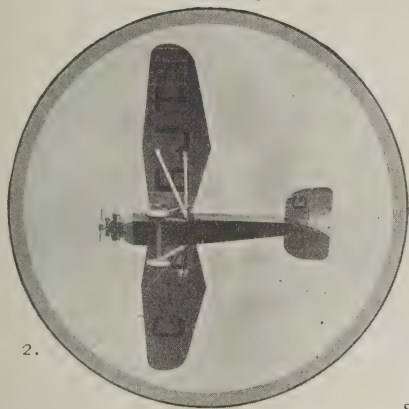
War Medals.

The Air Ministry announces that the British War Victory Medals of a large number of ex-officers and ex-airmen of the R.A.F. still remain to be issued. It is particularly desired that those still in the possession of the department should be issued without further delay, and the Ministry would therefore appeal to ex-Service personnel entitled them to apply at once and give the necessary information.

Applications should be addressed by ex-officers to the Secretary, Air Ministry, Adastral House, Kingsway, W.C. and by ex-airmen to the Officer-in-Charge, R.A.F. Record Office, Ruislip, Uxbridge, Middlesex.



PAGEENTRY.—Some of the R.A.F. machines which took part in the R.A.F. Display at Delhi on Feb. 21. The machines from left to right are three D.H.9as, two Fairey IIIFs, and a Vickers Victoria, belonging to No. 70 Squadron, Hinai. Six squadrons of the R.A.F. took part in the Display.



1. The Yeovil Bomber.
2. The Westland Widgeon.

Safety, Speed & Comfort IN WESTLAND MACHINES

For eleven years we have been designing and building aeroplanes, and to-day the reputation of Westland Aircraft for safety, speed and comfort is world-wide.

Our designs comprise all types from private single seaters to large twin engined bombing machines.

In these days road travel is anything but pleasant. By owning a light passenger machine you can recapture the joys of travel. We intend to publish shortly particulars of Widgeon III, a light passenger Monoplane which will be within reach of the man of moderate means. The machine folds, and will go comfortably into an ordinary garage. Widgeon II, the parent machine was the fastest machine in the Grosvenor Cup Race this year, with an average speed of 105.5 m.p.h.

We are supplying numbers of machines to the Royal Air Force both at home and abroad. We have our own 4 ft. wind channel for testing models, and our extensive aerodrome is situated by the side of the works for testing the finished machines. Enquiries are solicited for aircraft for all purposes.

WESTLAND AIRCRAFT FOR BUSINESS OR PLEASURE.

WESTLAND AIRCRAFT WORKS

(Branch of Petters Limited),

YEOVIL

ENGLAND.

R.A.F. SPORTS AND PASTIMES. Rugby Football.

THE ARMY *versus* THE ROYAL AIR FORCE.

The Army beat the Royal Air Force at Twickenham on Mar. 26 by two goals and four tries (22 points) to nothing. Thus at last the Army have had their revenge on the Air Force for beating them at Queen's Club in 1921 by 26 points to 3. The R.A.F. went full out the whole time but they were up against a vastly better team and great was the fall thereof.

Judging the Army team by their form against the Navy one would have imagined that their pack with more than enough Irish ginger in it to ginger the whole, would have reduced the Air Force pack to so much useless load. But as a matter of fact the forwards were fairly evenly matched. In the tight scrums there was very little to choose between them and although the Army had better control of the ball in the loose they were not called upon to cover the errors and omissions of their backs as were the Air Force forwards. The R.A.F. forwards were all very good indeed.

Behind the scrum the Army showed better combination, speed and initiative. The Air Force backs appeared to suffer first of all from the change in the stand-off half. Odbert played a good game on his own and showed promise of even better things in the future, but he missed a lot of Russell's somewhat erratic passes and overidid the cut-through at the expense of the threequarters. Russell was outplayed at scrum-half by Young, of England, the Army, and Blackheath, but he was the best defender on the Air Force side. He hauled his team out of the most desperate positions with colossal kicks from which the ball soared into space and after a long-distance reconnaissance suddenly lurched into touch.

The inside three-quarters handled badly and made innumerable mistakes, but their tackling was accurate and deadly. The wing threequarters were closely marked and although they too did excellent work in defence, never had a chance to use their speed in attack owing to the faulty judgment of the insides.

At full-back Burns was distinctly good. He was shaky at the start and is without the judgment and experience of Cass, the Army full-back, but his handling of a greasy ball was safe and he kicked a good length with either foot.

The war started with a sustained attack by the Royal Tank Corps which was repulsed by the High Speed Flight from Felixstowe who recovered the lost ground with a free-kick. The first Air Force attack broke down in the neighbourhood of Cranwell. After a brisk battle in the open the Tank Corps became aggressive again and, intercepting an Air Force pass, combined with the Highland Light Infantry to send the Queen's Regt. in for a try. The K.O.Y.L.I. converted. The Army offensive had started.

The R.A.F. forwards began to warm up and after a breather from a useful kick by Chick, Maxwell broke away with the ball at his feet but was tackled by Palmer. The Army backs got into their stride but good tackling by Hodder and Harvey and a long kick by Burns stopped them. Russell started a passing movement amongst the Air Force forwards and Beamish, Maxwell and Chichester put in some neat work before they were stopped.

The R.A.F. backs made some bad mistakes at this stage of the game. One of them handed the ball to an Army forward who was promptly obliterated by Russell, and another player twice kicked the ball right amongst the enemy while his own three-quarter line was standing ready for it. But somehow the Air Force forwards managed to drop back and cover up the mistakes.

The Army were playing a great game. Browne and McVicker, unit of the Irish pack which annihilated Scotland at Dublin on Feb. 26 were at the head of every raiding party. Young emerged miraculously from among the feet of the Air Force forwards to fire the first shot in every attack.

The R.A.F. were hard pushed and almost on their own line when O'Malley twice got the ball from the scrum and kicked into touch driving them back to the twenty-five. Chick got the ball from the second line-out and kicked ahead. Maxwell bowled over the man who fielded it and found touch. The Air Force were nearly in when somebody got off-side and Cass kicked half the length of the field into touch from the penalty.

Vines covered a misfield by Burns and Chick covered a mistake. Russell. Harvey made a great break-away but was downed by Young who was playing a faultless game. Maxwell (Army) took a pass from Young and making ground passed to Bryan who scored in the corner. The goal-kick failed.

Early in the second half Odbert intercepted a pass and got the ball out to Harvey who was promptly smothered. The Army forwards took charge and Browne passed, what looked like a forward pass, to Bryan who ran round behind the posts. Cass converted. In the course of this manoeuvre Maxwell (R.A.F.) was laid out but after a dose of something out of a large jug was able to carry on.

Rollings made a gallant effort to break through and gained some ground before he was brought down. Browne got away on his own and dodging two Air Force backs ran straight for the line. He was overtaken and crashed by Hodder but had gained his try by inches. No goal.

Right on top of this Maxwell (Army) sold a dummy and cut through for a beautiful try. Again no goal.

Then the Air Force started their best, and the most ferocious attack of the game. The whole pack charged down the field but the ball went loose only to be gathered by Maxwell (R.A.F.) who exchanged passes with Chichester. Then Odbert got the ball and passed it wildly. Palmer got it and found touch. Maxwell (R.A.F.) tried to kick a penalty goal from an awkward angle but the ball fell short and was fielded by Tucker who made a great run before he was tackled by Harvey. Burns kicked a tremendous length with his left foot.

Russell started a good movement which was carried on by Odbert. Bryson and Vines and the Army were forced to touch down. A great burst by the Army forwards was stopped by Chichester who went down on the ball. Christie and Chichester headed an Air Force attack from a line-out but they were checked again. Young got the ball from a scrum and having drawn the Air Force defence with a series of Immelman turns gave Bryan the ball for an easy try. The goal-kick failed.—C. M. McA.

The teams were:—

THE ARMY.—Lt. E. E. E. Cass (1st K.O.Y.L.I.), back; Lt. G. V. Palmer (Queen's Royal Regt.), Lt. A. R. Aslett (1st K.O.R. Regt.), Lt. R. B. Maxwell (R.A.O.C.), and Lt. G. J. Bryan (R.E.), three-quarter backs; Capt. R. H. G. Tucker (10th Gurkha Rifles) and Lt. A. Young (Royal Tank Corps), half-backs; Lt. E. P. Sewell (1st Northampton Regt.), Pte. J. Dowds (1st D. of W. Regt.), Lt. D. E. G. Chamberlain (Hants. Regt.), Lt. C. K. T. Faithfull (D. of W. Regt.), Sjt. W. Thomas (1st South Wales Borderers), Capt. J. A. Ross (1st H.L.I.), Lt. W. Browne (1st D. of W. Regt.), and Lt. H. M. McVicker (R.A.M.C.) forwards.

ROYAL AIR FORCE.—Flg. Off. E. S. Burns (Leuchars), back; Flg. Off. G. D. Harvey (Bitcham Newton), Flt. Lt. O. C. Bryson (Cranwell), Flt. Off. F. S. Hodder (Andover), and Flg. Off. C. P. Vines (S. Farborough), three-quarter backs; Flg. Off. R. V. M. Odbert (Worthdown), and Sq. Ldr. J. C. Russell (Air Ministry), half-backs; Flt. Lt. J. S. Chick (Felixstowe), Flt. Lt. G. H. H. Maxwell (Flowerdown), Flg. Off. C. J. S. O'Malley (Halton), Cpl. M. G. Christie (Shrewsbury), Flg. Off. P. G. Chichester (Manston), Flg. Off. J. G. Franks (Leuchars), Lt.-Ac. C. Rollings (Felixstowe), and Flg. Off. F. V. Beamish (Chichester) forwards.

One More Rugger Match?

Now that all serious Rugger is over for the season our ventures to call the attention of the R.A.F. Rugby Union to the frequently expressed desire of all ranks of the R.A.I.



THE MORE WE ARE TOGETHER.—Sq. Ldr. Russell getting the ball away from the scrum. Capt. J. A. Ross, H.L.I., with the white scrum-cap, looking surprised, Flg. Off. F. V. Beamish holding Lt.-Ac. Rollings with his right hand and Flt. Lt. Maxwell with his left. In the foreground is a rear three-quarter view of Flg. Off. O'Malley, and front three-quarter view of Flt. Lt. Chick, and on the right is Lt. W. F. Browne, the Irish International.

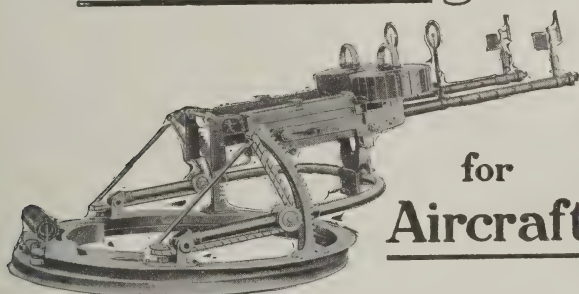
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who are interested in the game for a match between the R.A.F. representative side and the winners of the R.A.F. Cup.

The difference between a good player of Station Rugger and a player of inter-Service standards has not been impressed on the supporters of Station Rugger, and at the same time it would be an extremely interesting experiment to pit the well-tried combination of a Station side against the better individual players of a Service representative side.

Association Football.

R.A.F. v. Civil Service.—The Civil Service beat the R.A.F. at Salisbury on March 23 by four goals to one. *The Times* account of the game states:—

Wind, rain, muddy ground, and a greasy ball made accurate football difficult, but the Civil Service overcame these handicaps with considerable skill. The defence was beaten early in the match by Bennett, but, after the scoring of this goal, Gower and Gates settled down to a strong game at full-back, and Daniel did well at centre-half, though unaccustomed to that position. Wren, too, made some capital saves. Crist, having a good turn of speed and shooting well, did much the best work in the Air Force attack, and he caused Wren trouble on several occasions.

Generally, however, the forwards were slow on the ball. Want of adequate support from the half-backs caused further weakness in the Air Force front line.

The Civil Service, after a moderate start, became much the better side in every respect. The forwards got plenty of the ball and Meldrum opened the game with smart passes which frequently set the wing men going, in spite of the energy and skill in tackling of Robinson. Otherwise, the Civil Service forwards found the rival half-backs fairly easy to run round. Holmes and Tucker made a particularly good left wing and Hawkings responded admirably to Meldrum's passes.

The Civil Service took the lead before half-time, Meldrum and Hawkings scoring in turn. After the change of ends their defence prevailed, Gower doing particularly well, and the attack became still more effective, Hawkings and Meldrum adding goals in spite of some good saving by Baker.

Boxing.

The finals of the team championship meeting of the R.A.F. Boxing Association were held at Henlow on Mar. 25. The Cup was won by the Home Aircraft Depot, Henlow, who beat Manston by 16 points to 13. Henlow will now meet the Loyal Regiment for the Sir Philip Sassoon Cup.

The results were:—

Airmen's Bantam-weights.—L.A.C. Williamson (Henlow), ex-Champion, R.A.F., beat AC Caldwell (Manston), Champion, R.A.F., on points.

Airmen's Feather-weights.—AC. Bottler (Manston), Champion, R.A.F., beat L.A.C. Maher (Henlow) on points.

Airmen's Light-weights.—AC. Garrett (Henlow) beat AC. Wilson (Manston) on points.

Officers' Light-weights.—Flt. Off. Stokes (Manston) scratched to Flt. Lt. Bird (Henlow), who was awarded the walk-over and two points.

Officers' Middle-weights.—Flt. Off. Colquhoun (Henlow) beat Sq. Ldr. Stewart (Manston) on points.

Airmen's Welter-weights.—AC. Page (Manston) knocked out AC McGinn (Henlow) in three rounds.

Airmen's Middle-weights.—L.A.C. House (Manston) beat L.A.C. Wood (Manston) on points.

Airmen's Light Heavy-weights.—AC. Munkley (Henlow) knocked out AC. Thomas (Manston) in the third round.

Airmen's Heavy-weights.—AC. Watts (Henlow) knocked out L.A.C. Deane (Manston) in the second round.

Officers' Heavy-weights.—Flt. Off. Chichester (Manston), Champion, R.A.F., knocked out Flt. Off. Slocombe (Henlow) in the second round.

Inter-Service Boxing in 'Iraq.

The Inter-Services Boxing Championships were held at Hinaidi on Feb. 1. The final team placings were:—Army, 14 points; R.A.F., 10 points. The results were:—

Fly-weights.—Bandsman Fairhurst, The King's Regt., k.o. AC. Stickels, R.A.F., in the second round. **Bantam-weights.**—AC. Stockwell, R.A.F., beat Bandsman Brookes, The King's Regt., on points.

Feather-weights.—L.A.C. Codling, R.A.F., beat Pte. Beale, The King's Regt., after an extra round. **Light-weights.**—Pte. Scott, The King's Regt., beat L.A.C. Williams, R.A.F., on points after a hard fight.

Welter-weights.—Pte. Bromhead, The King's Regt., beat L.A.C. Davidson, R.A.F., by a narrow margin of points. **Middle-weights.**—Pte. Jackson, The King's Regt., beat Cpl. Wilson, R.A.F., after an extra round.

Light Heavy-weights.—L./Cpl. Dyer, The King's Regt., beat AC. Fielder, R.A.F., on points. **Heavy-weights.**—Cpl. Dennen, The King's Regt., k.o. L.A.C. Miller, R.A.F.

SPECIAL CONTESTS.—**Fly-weights.**—AC. Parkes, "A" Depot Sqdn., R.A.F., k.o. Sig. Simonds, R.C. of Signals, in the third round with a right hook to the jaw. **Feather-weights.**—AC. Donovan, No. 6 Arm. Car Coy., beat Sgt. Thompson, The King's Regt., by a number of points. **Light-weights.**—L./Cpl. Smith, The King's Regt., beat L.A.C. Campbell, "D" Depot Sqdn., on points. **Welter-weights.**—AC. Thynne, S.H.O., R.A.F., beat Pte. Gilmartin, The King's Regt., on points. **Welter-weights.**—L./Cpl. Kelly, The King's Regt., k.o. L.A.C. Cardwell, "A" Depot Sqdn., in the second round. **Middle-weights.**—Pte. Lyons, The King's Regt., k.o. Cpl. Proctor, "D" Depot Sqdn., in the second round.

WAR-TIME ISSUES OF "THE AEROPLANE" WANTED.

Readers of THE AEROPLANE who have complete sets of bound volumes of THE AEROPLANE for 1914-15-16-17 and 18 which they wish to sell should write to Capt. D. G. Murray, Williamgill, Bampton, Cumberland.

AIR AFFAIRS IN PARLIAMENT.

In the House of Commons on Mar. 23, in reply to Mr. ERSKINE, SECRETARY OF STATE FOR AIR said that he could not undertake to re the Regulations whereby the wives of officers in the R.A.F. stationed in 'Iraq were not allowed to live with their husbands in that country. But the question of possible relaxation would be kept periodic under review.

[Undoubtedly there are good and sufficient reasons why Air Force families should not be allowed to live in 'Iraq, the chief one being apparently the lack of accommodation inside the safety zones. The fact remains that, if the arrival and departure lists in *The Times* of Mesopotamia are to be believed, a certain number of officers' do go and live in 'Iraq. Presumably they live in hotels or houses in Baghdad or Basrah, and, as private individuals, they do nothing to prevent them from living in Mosul or outside the limits at Hinaidi. But they cannot live with their husbands in R.A.F. Camps. This arrangement has the added objection that, if a wife to live outside, her doing so is liable to impede the efficiency of husband.]

PARACHUTES.

In the House of Commons on Mar. 23, in reply to a question COL. DAY, the SECRETARY OF STATE FOR AIR said that the makers of parachute now in use in the R.A.F. were the Irving Air Chute Co. of Britain Ltd., of Letchworth. Replying to a supplementary question SIR SAMUEL HOARE said that he would not like to express an opinion on the Salvador parachute until further experiments had been made.

Replying to MAJ.-GEN. SIR F. SYKES on the subject of parachute SIR SAMUEL HOARE said that the number of parachutes due delivery by December, 1926, was 1,500 and these had been actually delivered in June, 1926. The contract was for 2,265 parachutes in all and of these 761 had to be manufactured in this country. Further orders had been placed and manufacture would take place in this country. All the materials and components other than the silk were British. Replying to COL. DAY, he said that the contract was run until December, 1927.

THE VOICE OF THE THURLE.

In the House of Commons on March 23, the SECRETARY OF STATE AIR told MR. THURLE that it would not be in the public interest state the total bomb-carrying capacity of the bombing squadron the Home Defence Force. Nor would it be in the public interest state the function of the bombing squadrons in the scheme of defence.

LT.-CDR KENWORTHY asked the SECRETARY OF STATE FOR AIR to be honestly that offence was the best form of defence. SIR SAMUEL HOARE did not think it necessary to explain the principles of air war to the House. LT.-CDR. KENWORTHY: "Is not the use of bomb squadrons to bomb the other people first, and why not say so?"

Replying further to MR. THURLE, the SECRETARY OF STATE FOR AIR said that the attendance at Divine Service was compulsory for ranks at Service air stations. Replying to MR. MAXTON, he said it applied to all Units, including bombing pilots. The pious THURLE:—"Can the right hon. gentleman say whether the doctrine of the Golden Rule is inculcated to the bombing pilots at this Depot Service?"

[This appears to have sunk Sir Samuel Hoare.]

"LUBRICATION IN MODERATION."

In the House of Commons on Mar. 23, CAPT. GARRO-JONES asked PRIME MINISTER whether, in his recent investigation into the cause of flying accidents, he made any inquiry into the rules governing consumption of alcoholic drink by flying officers, engineer officers, mechanics during flying hours; and whether he had revealed complaints of overwork by flying officers? MR. R. HUDSON thought question was an offensive insinuation. MR. SPEAKER said that it was not a crime to consume alcoholic liquor. CAPT. GARRO-JONES said he had made no charge of excessive drinking and had no intention of doing so.

THE PRIME MINISTER: "For the reasons which I gave at some length in the course of the discussion on Air Estimates on Mar. 10, I am prepared to make public the detailed results of my investigation into the causes of flying accidents, though I have informed the House in general terms of my main conclusions. Accordingly, I depend on inquiries on points of detail such as those contained in the following and gallant Member's question."

"Since, however, it has been suggested in certain quarters that the consumption of alcohol has had some bearing on recent accidents, House may like to know that I made very careful inquiries into this aspect of the matter, and satisfied myself completely that the consumption of alcohol amongst Royal Air Force personnel in general and officers in particular, far from being excessive, is very moderate and also satisfied myself that there was no evidence to show that the consumption of alcohol had caused or indeed contributed to any accidents. I may add that there was also no evidence that overwork by flying officers had been the cause of any accidents."

CAPT. GARRO-JONES said that although he agreed that there was no excessive consumption of alcoholic drink in the Air Force he believed that in some few cases moderate quantities of alcoholic liquor had been consumed immediately before flights and all scientific opinion was that this was a contributory cause of accidents.

MR. SPEAKER said that this was a serious allegation.

MR. SCRYMGEOUR said that *The Army Quarterly* dealt with various points which seemed to indicate very definite reasons for accidents. He thought those cogent reasons were worthy of a full investigation.

THE PRIME MINISTER said that that did not arise and he had seen the article.

AIR DEFENCE OF INDIA.

In the House of Commons on Mar. 27, MR. AMMON asked UNDER-SECRETARY OF STATE FOR INDIA whether, in view of the fact that had come over the problem of Indian defence as a result of the advent of the air arm, he was prepared to recommend the Government of India to throw open this arm of defence in both commissioned and non-commissioned ranks to suitable Indians.

LORD WINTERTON said that there was no Indian Air Force to which suitable Indians could be admitted. The Squadron in India was a unit of the Royal Air Force, a purely British Service, the command of which it was for His Majesty's Government to decide.

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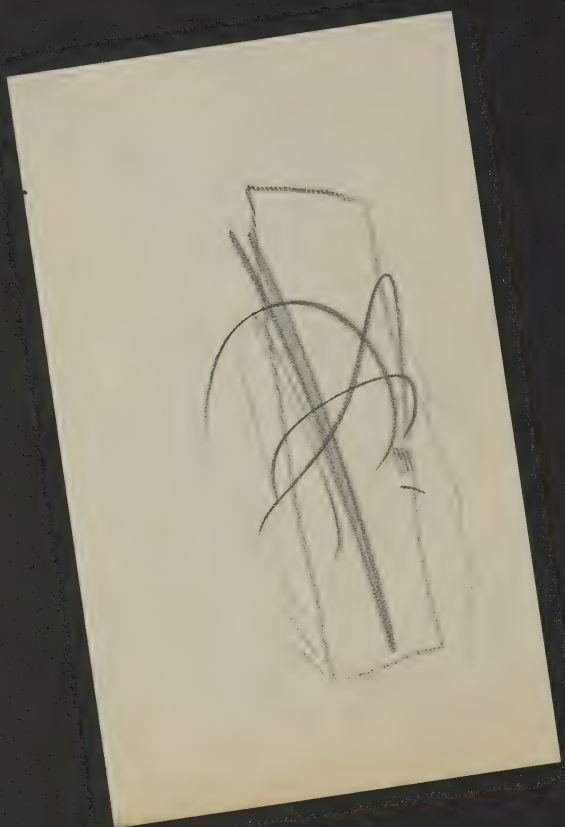
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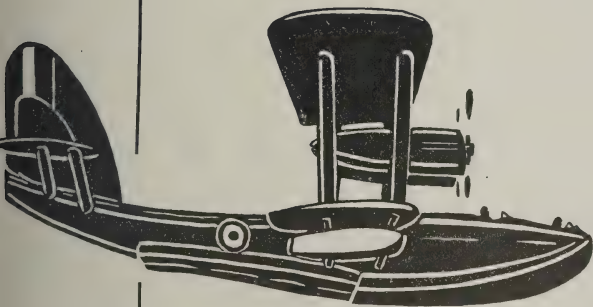
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A NOTABLE APPOINTMENT.

The following official notice has been received:—

Mr. Henry Thomas Tizard, C.B., A.F.C., F.R.S., has been appointed by His Majesty the King in Council to be Secretary to the Committee of the Privy Council for Scientific and Industrial Research on the retirement of Sir H. Frank Heath, K.C.B., from that office on June 1 next.

The Technical Editor of THE AEROPLANE writes:—

Mr. Tizard is extremely well known in aeronautical circles. He was a Fellow of Oriel College, Oxford, and lecturer in Natural Science. He joined the R.F.C. in the early days of the War, and was for a long time in command of the test squadron at Martlesham Heath. He was later Assistant Controller of Experiment and Research to the Air Ministry, retiring from the R.A.F. in 1919 with the rank of Lieut.-Colonel.

He has been secretary to the headquarters staff of the Department of Scientific and Industrial Research since 1919.

The Committee of the Privy Council for Scientific and Industrial Research was appointed by Order in Council dated July 28, 1915, to direct the application of any sums of money provided by Parliament for the organisation of scientific and industrial research.

The Department of Scientific and Industrial Research, which is the body directed by the above-mentioned Committee, consists of a Headquarters Staff, and of sub-departments for Building, Chemical, Food, Forest Products, and Fuel Research.

[Mr. Tizard is a scientist for whom one has an immense amount of respect, for he has proved his worth in a man's job besides showing scientific ability. He retired from the R.A.F. at the end of the War with the rank of Lieut.-Colonel after deserving a good deal more than the A.F.C. which was awarded to him.]

He was the leading figure (he would hate to be called the hero) of one of the most amusing and one of the most gallant actions in the War. He was at a test station on the East Coast, either Martlesham or Orford Ness, at the time when the Gotha bombers were at their best, or worst, and the anti-aircraft gunners were anxious to know the exact speed and usual travelling height of these enemy aircraft. One day Col. Tizard was out testing a new machine, with full load, guns, ammunition and all, plus the best scientific instruments, when he fell in with a flock of Gothas.

Thereupon he proceeded to sit on the tail, at a respectful distance, of the rearmost bomber while he collected full figures as to height and speed. He put them all down on paper, gave proper corrections for humidity, density and temperature, explained the situation, and wrote at the end of the report, "I now propose to engage." Then he put the report into a parachute message-bag addressed to the O.C. his station, dropped the bag overboard, sailed in and fought.

Whether he ran out of ammunition or was shot down one does not know. But happily he got safely home and survived to do much other valuable work.

Immediately after the War he became a professor at Oxford, and was one of the morally brave half-dozen or so of British scientists who in 1919 signed a letter, published in *The Times* one believes, setting forth their belief that now that the fighting was over the time had come for German and British scientists to resume friendly relations in the interests of human progress. This letter drew on the heads of the signatories the abuse of the pseudo-patriotic press, who wrote of them as mere scientific theorists ready to hold out their hands to the blood-stained Hun because they knew nothing of the horrors of war,—the journalists knowing nothing of the fact that one at least of these pacific professors was a very gallant gentleman who as a fighting man had proved himself the equal of the most blood-stained.

One wishes Lt.-Col. Tizard, C.B., A.F.C., every success as Mr. Tizard, F.R.S., and one congratulates the Committee for Scientific and Industrial Research on having so remarkable a secretary.—C. G. G.]

THE FLIGHT ROUND THE ATLANTIC.

On Mar. 25, Colonel the Marchese de Pinedo, who is attempting to fly round the Atlantic Ocean on a Savoia 55 flying-boat (two 550 h.p. Isotta-Fraschini Asso engines) left Para at 06.15 hours and alighted on the Demerara River, Georgetown, British Guiana, at 17.30 hours. Strong head winds forced him to break his journey at Paramaribo, Dutch Guiana, to refuel.

On Mar. 26 he flew from Georgetown to Pointe à Pitre, Guadeloupe, in the West Indian archipelago.

On Mar. 27 he reached Port au Prince, Hayti, where he was welcomed by Mr. Dwight Davis, the U.S. Secretary of State for War, who is on a tour of inspection of the Caribbean stations.

On Mar. 28 he left Port au Prince at 06.30 hours and reached Havana, Cuba, at 13.42 hours.

MR. HINKLER'S FLIGHT.

On Tuesday of this week Mr. Bert Hinkler had hoped to leave Croydon on his Avro-Avian (Cirrus) at dawn, and to fly non-stop via Bristol, Wexford, Dublin, Belfast, Edinburgh, Newcastle, and back to Croydon. The weather was too bad on Tuesday, and so he hoped to go to-day (Wednesday).

His main object is to get data of petrol and oil consumption, cruising speed, etc., for his forthcoming flight to Australia. Incidentally he will try and set up distance and duration records for a light aeroplane.

AVIATION AND ANTIQUITY.

Any officer, or man, of the R.A.F. who takes an intelligent interest in preparing himself for the next war, ought to make a study of the various races and sub-divisions of race which inhabit the World, because a knowledge of their ways of their mental outlook, of their history, of their psychology and ultimately of their origins, is likely to be of vital importance to him not only when dealing with enemies or allies, but when dealing with different types of our own people.

The only hope we have of getting accurate knowledge of racial and tribal origins is from the study of antiquity. And to this end one strongly recommends a new quarterly review of archaeology called *Antiquity*, edited by O. G. S. Crawford, F.S.A., and printed and published by John Bellows, Gloucester, England, at 5s. 6d. per copy.

In his editorial notes Mr. Crawford says:—

The uses of air-photography are only beginning to be properly appreciated, and they are many. Air-photographs reveal long unsuspected remains, such as "Woodhenge" and the Stonehenge Avenue; they show the excavator where to dig for walls, ditches, pit-dwellings; they reduce a tangle of earthworks to order and make plain their relative ages; they are invaluable to the lecturer and writer to illustrate his thesis. In this last respect their uses will be apparent to readers of the present number.

We intend to use air-photographs, whenever possible, for the purpose of illustrating articles, and, reversing the process, to select some of the best available photographs for use with explanatory text and diagrams. Among the most startling are some taken in Iraq which for the most part, are unpublished.

Thus it may be seen that our latest art, not yet become a science, is already of the first importance to the study of the most remote history, while most remote history is essential to us in using human material to the best advantage. So do extremes meet.

People who have served on Salisbury Plain will be particularly interested in this number of *Antiquity*, as it contains an article on Stonehenge as an astronomical instrument, and some excellent photographs of "Woodhenge," apparently a wooden edition of Stonehenge, which is quite near Amesbury, taken by Sq. Ldr. Gilbert Insall, V.C., M.C.

There are several other very interesting aerial photographs showing how cameras can see things from the air which are quite invisible on the ground, and may easily pass unnoticed by the human eye.

Those who have been so patient as to follow one's own curious theories about the origin of our own people will be interested in an article called "The Danube Thoroughfare and the Beginning of Civilisation in Europe" by V. Gordon Childe, in which the writer's theories agree closely with one's own, which are derived from entirely different sources.

The whole magazine is intensely interesting and very well written.

AIRCRAFT LAW.

The paper by Mr. L. A. Wingfield on Aircraft Law read before the Institution of Aeronautical Engineers on Mar. 2 forms a very useful general guide to the present state of the law affecting aircraft, and certainly ought to be in the hands of all owners of aeroplanes and other aerial vehicles.

Aerial navigation has been most unfortunate in its relations to the law. The outbreak of optimism among the political leaders of the victorious Allies in 1919 led to many unwise efforts at international co-operation—amongst them the International Convention for Air Navigation.

As a result of British adherence to this Convention the Government found itself under an obligation to frame legislation governing a type of transport which did not exist and concerning which no body of any kind possessed sufficient knowledge for the drawing up of regulations.

That these regulations have not altogether suppressed civil flying is possibly due to the fact mentioned by Mr. Wingfield in his paper, that flying at present is sufficiently uncommon for the general public to regard it from a kindly if patronising attitude and to neglect to enforce their full rights against aircraft and their owners.

As it is eminently to be hoped that this condition of affairs will alter in the near future it is important that all interested in flying should inform themselves as to the exact legal aspects of air navigation, and Mr. Wingfield's paper should prove an excellent introduction to their studies.

A NEW CURTISS FIGHTER.



ALL OUT.—The Curtiss Sea-Hawk (Pratt and Whitney Wasp engine) at Mitchel Field, L.I.

The Curtiss Aeroplane and Motor Co., Inc., of Garden City, L. I., N. Y., have just produced a new single-seat shipboard fighter, known as the F7C-1 or Sea-Hawk, fitted with the 200 h.p. Pratt and Whitney Wasp engine.

The machine has many new features, the most interesting of which is a landing gear incorporating hydraulic wheel-rakes and oleo shock-absorbers housed entirely within the wheels. The shock-absorbing medium is a combination of two-cylinder oleo gear and rubber discs, which gives smooth and easy action with no tendency to rebound. The hydraulically operated brake-shoes bear on the inner surface of the wheel-rim.

The entire undercarriage can be replaced by a single central float and the machine can be catapulted with either type of landing gear, a new feature in American shipboard aircraft.

The fuselage is a combination of rivetted steel and duralumin tubing with steel fittings and is designed to take catapult and deck-landing loads.

To give the pilot the maximum forward view for deck landing the pilot's seat has an up-and-down adjustment of even inches. To overcome the difficulty of the pilot reaching the rudder pedals with the seat in the full-up position the pedals slide backwards and forward as the seat is raised or lowered.

In the turtle-back of the fuselage, just aft of the pilot's head, is carried a pneumatic life-raft for use in case of an accident at sea. The raft can be inflated in a few seconds with carbon dioxide, a bottle of which, in liquefied form, like "sparklet," is carried in the same compartment.

The petrol tank is fitted with a large dumping valve, which will empty the tank in case of emergency in a few seconds. Additional safety is provided by keeping all pipe-lines outside the pilot's cockpit and by a pressure fire extinguisher carried in the engine compartment.

The wings, of Curtiss C-72 section, are of typical Curtiss construction, with spruce box-spars and ribs. The wing arrangement combines pronounced forward stagger with seven degrees of sweep-back in the top plane. The sweep-back does away with the need for a cut-out centre section, which latter is known to decrease the efficiency of the wing to a marked degree, so that in the F7C-1 perfect vision is attained with no sacrifice of aerodynamic efficiency.

Single-bay bracing with streamline steel tube struts and streamline wires is employed.

The ailerons are of a new balanced type which compensate against yaw and reduce the rudder movement required for turning. The tail surfaces are in general similar to those used on previous Curtiss single-seaters, with a balanced rudder and unbalanced elevators.

It is interesting to note that the construction of the F7C-1 was started on Dec. 8, 1926, and the first flight test was made on Feb. 28, 1927, less than 12 weeks later. No official performance-figures are available yet, as the machine is still under test at Mitchel Field. Afterwards it will be flown to the Anacostia Naval Air Station for actual ship-board operation and test as a seaplane.

The F7C-1 is one of three new fighters being developed for the U.S. Navy. The Boeing Airplane Co. and the Eberhart Airplane and Engine Co. are also producing new Navy fighters which will soon be ready for test.



THE CURTISS F7C-1.—A side-view of the latest Curtiss ship-board fighter.

THE FLYING CLUBS.

The London Aeroplane Club.

Report for week ending Mar. 27.

The weather conditions during the past week only allowed one day's flying, i.e., Monday, 21st, and the total flying time was 6 hrs. 30 mins. Instructor.—Capt. F. G. M. Sparks. Dual Instruction.—D. Hewett, L. W. Gibbens, J. A. Simson, G. M. Randall, A. S. Richardson, H. Wickett, L. G. Sykes. Solo Flying.—Miss O'Brien, H. Spooner, T. W. G. Eady, N. J. Hulbert. Passenger Flight.—C. H. Tutt.

ANNUAL DANCE.—The Annual Dance was held at the Spring Garden Galleries on Tuesday last and was attended by nearly 200 members and friends. Mrs. Woods Humphrey and her Dance Committee are to be congratulated on providing a most pleasant evening.

BOURNEMOUTH EASTER RACES.—The selection of members to pilot the machines is getting more difficult on account of the larger number now available and wishing to take part. Members will be admitted free to the Members' Enclosure and Paddock on production of their Membership Badges. There will be a charge of 2s. 6d. for Motor-cars.

The Lancashire Aero Club.

Report for week ending Mar. 26.

Total flying time for the week 38 hrs. 12 mins., made up as follows:—Dual with Mr. Brown:—Messrs. Serke 2 hrs. 35 mins., Birley 1 hr. 15 mins., Miss Brown 55 mins., Messrs. Ward 55 mins., Forshaw 35 mins., McNair, Hartley and Caldecott 30 mins. each, Shiers 25 mins., Anderson, Nelson, Evans and Miss Emery 20 mins. each, Messrs. Michelson, Dickinson, Crosthwaite and Fray 15 mins. each, Gattrell 10 mins., Mulder 20 mins. Dual with Mr. Cantrill:—Mr. Chadwick 25 mins. Dual with Mr. Scholes:—Mr. Serke 15 mins. Solo:—Messrs. Twemlow 1 hr., Michelson 45 mins., Birley 30 mins., Wade 15 mins., Williams 10 mins. Joy-rides:—With Mr. Scholes—Mr. Fallon 50 mins., Miss Anderson 10 mins. With Mr. Lacayo—Mr. Caldecott 55 mins. With Mr. Cantrill—Mr. Proctor 20 mins., Mrs. McNair 10 mins. With Mr. Leeming—Mr. F. Scholes 25 mins., With Mr. Goodfellow—Miss Bodenham 15 mins. Test flights:—47 mins.

The weather continued fair till Monday last, on which day, being the Vernal Equinox, it most appropriately changed for the worse until, by the end of the week, the snow was trying to lie and the members had given up trying to fly. "Integer vite scelerisque purus non eget avis . . ." and all that sort of thing, of course, but—Well, I'm glad we've got a comfortable club-house nowadays.

The Newcastle-upon-Tyne Aero Club.

Report for week ending Mar. 27.

Flying was impossible, owing to either fogs or high winds, from Sunday, Mar. 20, to Friday, Mar. 25, inclusive.

Mr. R. N. Thompson flew for 30 mins. on Saturday, when the fog cleared a little. Later in the day, Mr. Brown decided to change a cylinder head with which he was not satisfied, so the Club's only machine was taken off service. The weather on Sunday morning was excellent, but it was late afternoon before the machine was tested and passed, after which 2 hrs. 35 mins. flying was done.

Total for the week 3 hrs. 5 mins. Dual 1 hr. "A" Pilots—Mr. R. N. Thompson 30 mins., Mr. H. Ellis with Mr. Thirwell 30 mins., Dr. Dixon with Mr. C. Thompson 30 mins. Test 15 mins.

A member of the Club who is a garage proprietor received a message, while at the Aerodrome, that a car belonging to one of his clients had developed a fault (the starter stuck, it is believed), and in answer to this S.O.S. Mr. Parkinson flew over with the member to the place where the breakdown occurred, landed within a few yards of the car and returned to the Aerodrome alone, having been away only 20 mins. Very shortly afterwards the member arrived at the Aerodrome with the car concerned.

The Club wishes to congratulate very heartily the London Club on their excellent achievement, reported last week, in completing in the week 82 hours' flying with 23 hours on one day. With the present and possible future equipment of the Club it will not be easy, but every effort will be made to beat this record, in the right spirit, of course, and in competition with other Clubs.

The Yorkshire Aeroplane Club.

Report for week ending Mar. 27.

Total flying time for the week 4 hrs 40 mins., made up of:—Dual instruction 2 hrs. 10 mins. Solo 1 hr. 30 mins. Pleasure flights 45 mins. Tests 15 mins. There were 20 flights made in all. Messrs. Dawson, Mann, M. B. Lax and Wood flew solo. Mr. Wood took up an Avro with Mr. Mann as passenger for a flight of 5 mins.



THE ANCESTOR OF THE LIGHT AEROPLANE.—The Austin Whippet (Anzani engine) designed by Mr. John Kenworthy just after the Armistice in 1918, and produced early in 1919. This particular machine, which was the property of Flt. Lt. Soden, R.A.F., is now owned by the Midland Aero Club.

Messrs. Oglesby, R. K. Lax, Swift, Wilson and Batcock received dual instruction.

Two prospective members, Mr. and Miss Wilkinson, were given flights of 10 and 15 mins. each, respectively.

On Sunday afternoon Lord Ossulston arrived with a passenger in his Moth at 4.10 p.m., having flown from Cramlington in 1 hr. 20 mins. The aerodrome presented a scene of considerable activity when he arrived as both our Moth (NN.) and the Avro were also in the air at the same time and a number of cars were on the tarmac.

With the exception of 10 mins. flown during the week the rest of the flying was done on Saturday and Sunday only.

The Midland Aero Club.

Report for week ending Mar. 26.

Total flying time 5 hrs. 20 mins.

The following members were given dual instruction by Mr. McDonough:—C. Fellows, E. P. Lane, S. H. Smith, J. C. Rowlands, A. Ellison, H. Beamish. Advanced dual:—H. J. Willis. Mr. Brighton flew solo and also with passengers. High winds restricted flying.

Mr. J. F. C. Brinton, a member of the Club, has recently been gazetted a Pilot Officer in No. 605 (Bombing) Squadron, A.A.F.

The second dance of the season was held at the Palace Ballroom, Erdington, on Mar. 25, and was very successful. The profits are being devoted to the social amenities of the Club.—V. M. P.

The Hampshire Aeroplane Club.

Report for week ending Mar. 25.

Owing to very high winds, flying was again curtailed this week to two days. Therefore, the total time was only 4 hrs. 10 mins. Instruction flying 3 hrs. 25 mins. Joy-riding 30 mins. Solo flying 15 mins.

The following members had instruction:—Lieut. Heinemann, R.N., 45 mins., Messrs. Dobson 25 mins., Dunning 25 mins., Clifton 45 mins., Stokes 20 mins., Mellor 20 mins., Dickson 15 mins., and Courtney 10 mins. The soloists were Keeping 10 mins., and Cooper 5 mins. The Joy-riders were Mrs. Williams, Mrs. Hallum and Mr. Burley.

On Thursday, a dance was held at the Barova Café in Southampton, and it was voted a great success by all present. In fact, the organiser, Mr. Clifton, was asked to arrange another, and so it was decided to hold one on May 17. The number of tickets is limited, so early application by all who intend to be there is advised.

The Norfolk and Norwich Aero Club.

The De Havilland Aircraft Co. Ltd. have lent a D.H. Moth to the Norfolk and Norwich Aero Club pending the delivery of the Club's own machine. The Moth has been "on view" in the Norwich Market Place, to help in making Norwich "air-minded," and has also been flying at the Mousehold Aerodrome.

APOLOGIES.

One tenders apologies to the Honourable Geoffrey Cunliffe of the Hampshire Aeroplane Club. The "Society para-graphist" of THE AEROPLANE last week made him his brother's son. As a matter of fact the present Lord Cunliffe, who served in the R.N.A.S. and R.A.F. during the War, and is now one of the leading lights in the Airship Club, was himself born in 1899. The Honourable Geoffrey Cunliffe, the Moth pilot, who was born in 1903, was too young to take a hand in the War. One trusts that he will accept this apology.

[It is always well to apologise in time to heavyweight champions.—Ed.]

THE FATHER OF BRITISH AVIATION.

Those who are interested in the early history of aeronautics will find in *The Times* of Mar 10 an extremely interesting article by Mr. J. E. Hodgson, entitled "The Pioneer of Flying."

Mr. Hodgson, who is a well-known authority on the early history of flying, has, by the courtesy of Sir Kenneth Cayley, been enabled to examine the original notes and papers left by Sir George Cayley, whose experiments and investigations into the problems of mechanical flight started before 1800 and continued until 1853.

Sir George Cayley's aeronautical work was marked by breadth of outlook and a sound appreciation of the many difficulties which would have to be overcome before flying became practicable which is little short of amazing.

In the confined space available to him in *The Times* Mr. Hodgson is necessarily able only to give a very brief outline of the results of his examination of Sir George Cayley's notes. It is to be hoped that he will find it possible to publish in the near future some more detailed account of the new material which has now become available.

THE LOENING AMPHIBIAN ON SERVICE.

The Loening Aeronautical Corporation, of New York, received the following telegram from Major Dargue, U.S. Air Corps, O.C. the Pan-American Flight, the day after the formation of Loening Amphibians led by him had crossed the Andes:—

Flagship *New York* led Pan American flight on non-stop oceanic flight yesterday in most hazardous journey so far twelve thousand feet over Andes which were completely obscured by storms and clouds followed by severe buffeting from hot winds of northern Patagonia. Left Valdivia in rain and headed straight east to Bahía Pampas. Making the six hundred fifty miles in five hours forty minutes.

This was probably the longest non-stop flight ever made by amphibian aircraft, and the conditions under which it was made prove the airworthiness of the Loening products.

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 12; Tuesday, 12; Wednesday, 13; Thursday, 18; Friday, 10; Saturday, 11; Sunday, 2.

IMPERIAL AIRWAYS LTD:

London—Paris; London—Brussels—Cologne: Machines 28, passengers 209, freight 10 tons.

AIR UNION:

Paris—London: Machines 24, passengers 39, freight 1½ tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 14, passengers 25, freight 1½ tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 12, passengers 20.

SABENA:

Brussels—London: Machines 6, passengers 6.

PRIVATE:

Machines 6, passengers 0.

Total number of trips by British Machines, 28, carrying 209 passengers. Foreign Machines, 59, carrying 93 passengers.

Comparative Figures:

Week ending Mar. 27:

Machines, 78; Passengers, 302; Crews, 130; Total personnel, 432.

Corresponding week, 1926:

Machines, 75; Passengers, 285; Crews, 100; Total personnel, 385.

Corresponding week, 1925:

Machines, 89; Passengers, 259; Crews, 105; Total personnel, 364.

Corresponding week, 1924:

Machines, 58; Passengers, 134; Crews, 100; Total personnel, 234.

Corresponding week, 1923:

Machines, 85; Passengers, 371; Crews, 156; Total personnel, 527.

Corresponding week, 1922:

Machines, 66; Passengers, 177; Crews, 105; Total personnel, 222.

Corresponding week, 1921:

Machines, 48; Passengers, 162; Crews, 60; Total personnel, 222.

Croydon Notes.

On Thursday of this week Imperial Airways conclude their third year of existence, having been formed on Apr. 1, 1921. In those days they operated a service to Paris, Zurich, Ostend, Brussels, Cologne, Amsterdam and Berlin. At first sight it may seem to be a retrograde step when one sees that they have not increased their European services and have in actual fact dropped the Amsterdam and Berlin services.

There may be several opinions as to whether they were right or not about this. But just as it is misleading to judge the work of a Government at the beginning of its term of office, so equally it is wrong to judge Imperial Airways' work at the third year of a ten years' policy without knowing what is going on in the sphinx-like mind of the management. This is all the more true because results have shown that there is every reason to have faith in the management of Imperial Airways.

We have heard a lot recently about the marvels of German Civil Aviation, but it must be remembered that, not being allowed to maintain an Air Force, Germany is able to spend on Civil Aviation all the money which otherwise would be devoted to an Air Force. "You can have anything you want if you pay for it" is, in the case of aviation at any rate, very true. We could have the Amsterdam and Berlin route back again and run a service via Prague, Vienna, Buda Pest to Constantinople and on to the East at once if more money were available.

The management of Imperial Airways is evidently convinced that on the present subsidy there is only enough money to run to Paris, Zurich, Ostend, Brussels and Cologne, and they are setting out to make those services the best and safest in the world. Everyone knows that they have attained their object. If you cannot have quantity and quality together it is better to have quality and wait until you can afford quantity.

The third Argosy has at long last been handed over to Imperial Airways by the Air Ministry. It was delivered by Air on Monday of this week. The W.10, which a tired shed recently reposed, is being repaired rapidly at Cricklewood. So the danger of a possible machine shortage this year seems to be averted for there are now 34 extra seats available.

Imperial Airways now have five 3-engined machines and five twin-engined machines for the European routes and five 3-engined machines for the Eastern route.

Mr. Barnard and the passengers and crew of the last of the Hercules returned home on Sunday night. They all came back disguised as millionaires on the *Mauretania*, which was on a cruise in the Mediterranean Sea.

Mr. Barnard said that both he and the passengers and crews found that travelling by air was pleasanter than the sea voyage. They were ill most of the time they were at sea, and the sea voyage without a stop was twice as long as the air trip including stops. They seldom did more than six hours' flying per day and were able to eat and sleep comfortably on the ground each night. Mr. Barnard believes that a London—Cairo regular service would be immediately popular.

Mr. Hope flew the Duma-Martinsyde from Stag Lane to Croydon on Monday of last week for inspection by A.D.C. Aircraft Ltd. and Mr. Perry tested it. On Tuesday Mr. Perry flew to Stag Lane and back on an Avro-Airdisco.

On Friday, Mr. Hope on the Tinsyde and Mr. Perry on a Bristol Fighter flew up to Aintree and back in appalling weather, bringing two photographs of the National horse-jumping contest there.—G.

THE DIRECTOR OF CIVIL AVIATION IN EAST AFRICA

The correspondent of *The Times* in Nairobi says:—

Air Vice-Marshal Sir Sefton Branker, Director of Civil Aviation, returned here (Nairobi) from Dar es Salaam.

He says that he is very satisfied with the reception of his suggestion that Tanganyika should share in the extension and the financing of the Khartum—Kisumu air line. Sir Donald Cameron, Governor of Tanganyika, was certain that the country would contribute towards a permanent service as far as it was able.

Sir Sefton Branker also said that he had communicated with representatives of the Aircraft Operating Company, Ltd., who were carrying out an aerial survey in Northern Rhodesia, and had asked them to send one of their party to visit Dar es Salaam to consult with the Government as to the possibility of and the cost of carrying out an aerial survey of the forests in the tsetse area south of Tabora.

He also hoped to arrange a large-scale experimental attack on cotton pests in the Sudan by means of aircraft. He expects that both proposals will be considered at the Governors' Conference in London May, at which Sir Donald Cameron will be present.

STAG LANE NEWS.

The flying school at Stag Lane has been particularly busy and in spite of the weather there have been 40 hours' instructional work in the past week.

Mrs. Bell, wife of Sq. Ldr. Bell, the Australian liaison officer between the R.A.A.F. and the R.A.F., qualified for her certificate as an aviator in good style on Monday. So confident are the De Havilland Company in her ability that they have lent to her their demonstration Moth to fly in the Aerodrome Oaks at Bournemouth.

The D.H.9J (Jaguar) has been taking cinematograph film (or rather a cinema man in it was) of two S.E.5as skywriting at 14,000 ft. Thus people on the ground will be able to see "close-ups" of full stops and of Mr. Lingham's face dotted with his eyes and crossing his teas.

To-day (Wednesday) there is to be an interesting ceremony at Stag Lane. Mr. Jerry Shaw, Director of Civil Aviation for the Shell Company, will take over on behalf of the Shell Company a Moth which he will use on the Company's service to replace his car on long journeys. As most of his travelling is done to call on aerodrome personnel, obviously the acquisition of a Moth will save him much time and trouble.

One congratulates the Shell Company on their progressiveness of spirit.—G. D.

A CANADIAN AIR MAIL SERVICE.

In reply to a question in the House of Commons, Ottawa, Mr. Fernand Rinfret, Secretary of State, said that the Canadian Government would establish an Air Mail service and would extend the service to the Eastern and Western Provinces as conditions would warrant.

AN AUSTRALIAN ACCIDENT.

On Mar. 24 an aeroplane belonging to the Queensland and Northern Territory Aerial Services Ltd., flying on the Charleville—Camooweal air route, crashed at Tambo, Queensland. The pilot, Mr. Davidson, and the two passengers, Mr. Beal, a pastoralist of Winton, and Mr. Donaldson, of Rockhampton, Camooweal, were killed.

Quantas began operations on Nov. 2, 1922, with a service between Charleville and Cloncurry (577 miles), and extended the route to Camooweal (825 miles) on Jan. 31, 1923. Since inauguration and up to Dec. 31, 1926, the company covered a total of 429,098 miles without injury to personnel or passengers, and during January, 1927, a further 10,283 miles were covered.

This accident is the first the firm has had during its long and successful period of operation.

A DUTCH ROUTE TO THE EAST.

According to *The Times*, the question of a combined sea and air transport route between Holland and the Dutch East Indies was discussed at a conference held at the Hague on Mar. 26, at which both the Queen Mother and Prince Henry who represented the Queen, were present.

The primary object of the meeting, which had been convened by the Holland-India Committee, the Koninklijke Luchtvaart Maatschappij (Royal Dutch Air Service), and other interested parties, was, first, to establish a regular weekly air service between Sourabaya, Batavia, Sabang, with Singapore as an intermediate station, and secondly, to open a weekly air service between Holland and Cairo in conjunction with fast Dutch mail steamers from Cairo to Sabang. It was thought

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possible that both the proposed services might be in operation at early date. Such services would bring the Dutch East Indies within a fortnight's journey of Holland—halving the time taken by steam.

JUNKERS PROGRESS.

The following table gives a good idea of the increase in the fine work for aviation which is being done by the Junkers Company year by year.

	Miles flown.	Passengers carried.	Freight, mail, and luggage.
1921	218,750	2,230	2.50 Tons
1922	335,282	11,005	16.18 "
1923	791,731	26,509	67.035 "
1924	1,047,107	40,298	142.866 "
1925	3,000,926	93,639	656.602 "
1926	4,023,802	108,067	1,576.53 "

THE AIR WAY TO BOURNEMOUTH.

Imperial Airways Ltd. will be sending a Handley Page liner to Bournemouth for the Easter Air Races. The machine will leave Croydon at 09.00 hrs. on Good Friday and will return on the following Tuesday at 09.00 hrs. The fare will be £2 Single and £3 12s. Return. Luggage 30 lbs. free. Fares include transport between London and Croydon.

SIR SAMUEL HOARE AT THE PRESS CLUB.

Sir Samuel Hoare, Secretary of State for Air, Sir Alan Cobham, M.C., H. Scott, the airship pilot, and Major C. Woods-Humphrey, Imperial Airways Ltd., were the chief guests of the Press Club at dinner on Mar. 26. Lord Riddell presided.

Sir Samuel Hoare, in the course of his reply to the toast of "Guests," said that the Air Ministry was trying to make the Air Force strong enough to undertake the obligations imposed upon it by its defence, co-operation with the Army and with the Navy and with overseas.

There was also the necessity for the development of Empire routes to the Far East and across the length and breadth of Africa. It was because the airship could confer so much benefit on the British Empire that every attempt was being made to develop it.

Sir Alan Cobham said that so long as people imagined that it was a brave thing to fly in the air Civil Aviation would never go ahead.

NEW COMPANY.

WESTERN AVIATION LTD.—Private company. Registered Mar. Capital £1,000 in £1 shares. Objects: To carry on the business of manufacturers of and dealers in flying machines, aeroplanes, gliders, planes, or other aircraft or machines, etc. The directors are:—R. E. Jordan, Belmore House, Bath Road, Cheltenham, engineer; J. Sherrin, "Terry Lawn," Pittville, Cheltenham, secretary. Qualification: Remuneration: As fixed by the company. Secretary: J. Sherrin, Solicitor: H. F. Midwinter, Crescent Place, Cheltenham. Registered office: Crescent Place, Cheltenham.

PERSONAL NOTICES.

DEATHS.

BLAKE.—On Mar. 19, at St. Bartholemew's Hospital, London, after a short illness, Flt. Lt. George Eric Blake, Electrical Services W. Company, R.A.F., beloved husband of Muriel Blake, of 132a, Finsbury Street, Uxbridge.

WIGHT.—On Feb. 13, missing at Shanghai, Lieut. R. L. Wight, D.S.C., R.N., of H.M.S. *Vindictive*, only son of the late Col. E. Wight, A.M.S., and Mrs. Wight, of Paddocks, Newtown, Newbury. Lieut. Wight joined the *Vindictive* as an air observer in November 1925, after an observer's course at Portsmouth and a period of training in H.M.S. *Argus*.

MARRIAGE.

BRAKEY—MCNIVEN-MAIN.—On Mar. 23, at St. Martin-in-the-Fields by the Rev. M. Griffith, Flt. Lt. J. Denis Brakey, D.F.C., only son of John Ed. Brakey, of Abbeydale Hall, Dore, to Meta, younger daughter of the late Alister McNiven and Mrs. J. A. Main, of "Langhurst, Chiddingfold.

FORTHCOMING MARRIAGES.

BONHAM-CARTER—PALMER.—A marriage has been arranged, and will take place on June 1, at St. James's Church, Paddington, between David William Frederick Bonham-Carter, Flg. Off., R.A.F., son of Mr. Walter Henry Bonham-Carter, of 5, Sussex Gardens, Hyde Park, W.2, and Joyce Angela, younger daughter of the Rev. Canon F. Palmer and Mrs. Palmer, of 24, Warwick Gardens, Worthing.

DEARLOVE—GARRATT.—The engagement is announced of Flt. Cuthbert J. S. Dearlove, R.A.F., son of Mr. and Mrs. G. A. Dearlove of Cardiff, and Miss Christine Garratt, only daughter of Mr. and P. J. Garratt, of Morris Bank, Newbury.

MASON—LOCKE.—The marriage arranged between Mr. C. Rutherford Mason, R.A.F., and Miss Alice Locke, daughter of Mr. and Mrs. H. Locke, of Caterham Valley, will take place at the Parish Church, Lingfield, on Tuesday, Apr. 10.

OPENSHAW—BRUCE.—A marriage has been arranged, and will take place on Apr. 12, at St. John the Baptist Church, Yeovil, between Lawrence Pratt Openshaw, only son of Col. T. H. Openshaw, C.M.G., and Mrs. Openshaw, of 16, Wimpole Street, and Alice Bruce, eldest daughter of Mr. and Mrs. R. A. Bruce, The Knoll, Yeovil.

REID—GOLDSMITH.—The engagement is announced between H. Redvers McLaren Reid, D.F.C., R.A.F., elder son of the late Mr. Reid, of Buenos Aires, and Mrs. Reid, of Florence, Italy, and Margaret widow of Major H. A. Goldsmith, M.C., I.A., and elder daughter of Dr. and Mrs. Copeman, of Hove, Sussex.

SCRIVEN—GRICE.—The engagement is announced between Flt. V. R. Scriven, A.F.C., R.A.F., youngest son of Mr. and Mrs. J. Scriven, of Ealing, London, and Hilda Jean, youngest daughter of Sir John and Lady Grice, of Melbourne, Australia.

BIRTH.

DE BURGH.—At Cambridge, on Mar. 18, the wife of Hon. Flt. Lt. U. C. De Burgh, R.A.F.—a daughter.

THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by
C. G. G. G.
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Registered at the G.P.O.
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THE FREEDOM OF THE AIR—The "Atlantida" patrol of Dornier Wals (Rolls-Royce Engines) of the Spanish Royal Navy in Las Palmas Harbour (Canary Islands) on their way to Spanish Guinea (West Africa).

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ON THE GENERAL PURPOSE COMPETITION.

Not very many years ago there was a popular song with refrain which ran "What one can do when one wants to if one tries." There has never been a better demonstration of what one can do by trying than is given by the machines which are, or were at any rate last week, being tested at the Aeroplane and Armament Experimental Station at Martlesham Heath.

They show once more that when the Englishman is really up against it, and is left by himself to do his own job in his own way, he can beat the rest of the World. And conversely they show, by comparison with the standard R.A.F. machines, that when the Englishman has to work under official supervision with official help, so-called, either his style is so cramped or he becomes so lazy that he fails to achieve anything worth doing.

First of all, perhaps, one had better explain that for months rumour in clubs and aerodromes has been concerned with what has come to be called commonly "The General Purpose Competition." What it means is that the Air Council at long last has made up its mind that it has got to have something to replace the good old D.H.9a, a machine which is a type is at least ten years old, and has been doing the general purpose work of the R.A.F. during that time.

THE GOOD OLD 9A.

The "Nine Ack" has been used for advanced training in Great Britain, it has been used for general communication work all over the World, it has been used for bombing in Egypt and Iraq, and it has been used for running the Cairo-Baghdad mail route. In fact, it has shared with the Bristol Fighter all the useful land work of the Royal Air Force, except a certain amount of bombing and troop-carrying and mail-carrying which has been done by the various types of win-engined Vickers machines in Iraq.

D.H.9as were even used for the flight from Cairo to Nigeria and back by way of Khartoum, before the new batch of Fairey IIIDs were delivered for the Cairo-to-the-Cape-and-back flight.

Considering how long ago it was designed, the D.H.9a. is a wonderful aeroplane. But the Liberty engine, with which all of the type are equipped, is heavy and out of date, albeit reliable. Also it is an American engine, and of course it is all wrong that we should be using foreign engines in the Air Force—though, curiously enough, nobody ever thought of mentioning the Liberty engines in the D.H.9as when there was all that faked-up fuss about the Curtiss engines in the Fairey Foxes.

Also, in spite of our scientists and the experts at the Air Ministry, our ordinary aircraft designers have made quite a considerable amount of progress in their ideas of aeroplane design in the past ten years. And evidently somebody at the Air Ministry has awakened to that idea and has come to the conclusion that it is now possible to get a general purpose machine which not only has a better all-round performance than the D.H.9a but is easier and safer to fly.

The D.H.9a in its day was a most useful machine. But naturally it has certain faults which can be cured in the light of modern knowledge. One believes that a skilful pilot can plant a D.H.9a. on the ground fairly slowly, but in the hands of the ordinary pilot it will float for a terrific distance before it actually sits on the ground, or else it will land uncomfortably fast. Also one believes that it is rather apt to stall suddenly and spin, though to its credit it must be said that when it does so it can always be got under control again if it has room to drop.

Anyhow, with all its virtues, including the fact that like all the de Havilland products it cannot be improved so far as material and workmanship are concerned, it is quite time for the R.A.F. to have a new general purpose machine with a higher performance.

FORCING THE HANDS OF THE AIR MINISTRY.

According to their usual custom, the experts at the Air Ministry sent out specifications for a D.H.9a replacement. But, evidently encouraged by the success of numerous machines which have been built as independent ventures in defiance of the Air Ministry experts, such as the Fairey Fox and Firefly, and the Avro Avenger and Ava, and the Armstrong Atlas and Argosy, and the de Havilland Moth and Hercules, and perhaps some others which do not occur to one at the moment, a number of firms, instead of adhering slavishly to the Air Ministry specification, have deliberately set to work and have produced machines of independent design which are suited for the general purpose work which has hitherto been done by the D.H.9a.

The result is that, finding that practically all these independent machines have better performances than could be got out of a machine built strictly to specification, the Air Ministry decided some few months ago to hold an open competition, without any rules or regulations or specifications or anything about it, and to test all these machines against one another with the idea of selecting as the standard general purpose machine the particular aeroplane which is best suited for the job.



BRITISH AIR POWER.—The Fokker F.VIIa (whose power-plant is a Bristol Jupiter), flying over the Rotterdam Docks on the K.L.M. Air Line.

Rumour says that the prize for the Competition is to be an order for 300 machines. If that be true, then the winner of the Competition ought to make quite a nice little fortune. But, personally, one doubts whether it would be in the best interests of the Air Force to standardise one particular type to such an extent. One is sure that it would be very much better policy in the end to select three, or even four, of the best of the bunch—provided that they all have an equally good performance—and divide the order up among them.

At the present stage of aircraft design, and for a good many years to come, we do not know enough about design to justify standardising definitely one particular type for one particular purpose. All aircraft ought to be regarded as experimental. And we shall get quite near enough to standardisation if the equipment of each squadron be standardised, without going so far as deciding that all squadrons intended for one class of work shall have the same standardised equipment.

THE JUDGES.

No official announcement whatever has been made public about this Competition, but rumour, again the only authority, says that the judging of this Competition will be done by the practical flying people at the Air Ministry and not by the experts. Also rumour says that the final judgment will be made by Marshal of the Royal Air Force Sir Hugh Trenchard, Chief of the Air Staff. That at any rate is quite satisfactory.

Sir Hugh Trenchard has never set up as having any technical knowledge. But he has a curious faculty for listening to what the technical people say and listening to what the pilots say and listening to what is said by the people who have to deal with equipment and maintenance, and digesting the lot, and then coming to a decision which time proves to be right. One remembers that over and over again during the War, when he was commanding the R.F.C. in the Field, Sir Hugh Trenchard fixed on a certain type of machine, often against the advice of both the technical experts and the pilots, and every time he did so the development of air tactics or new demands for air work for the Army showed that he was right.

Also, the new Air Member for Supply and Research, Air Vice-Marshal Sir John Higgins, has not long been back from Iraq, where he has been constantly flying and consequently knows what the flying people want. Moreover he was himself, not so very many years ago, one of the best of our military pilots. So he can understand thoroughly the pilots' views on the machines which are being tested.

On the whole, therefore, we may be quite sure that by the time all the machines at Martlesham have been fully tested by the R.A.F. pilots detailed for the job, and have had all their performance figures properly taken, the judges will know just about as much about them as there is to know. And when the orders are placed the R.A.F. will be able to pride itself on having about the best General Purpose machine in the World.

SECRECY.

Of course, all the machines in the Competition are deadly secrets. Even by mentioning their names one is probably laying oneself open to prosecution under the Official Secrets Act. But anybody who is at all interested, including not only the official representatives of foreign nations, but the individual representatives of foreign manufacturers, can go and sit comfortably in their cars on the main road from Felixstowe to Woodbridge, which runs right through the middle of the aerodrome at Martlesham, and watch the machines being tested.

Possibly if they sit there too long the local policeman may

move them on for causing an obstruction on the road. But they can always return, and can see for themselves exactly what the machines are. And they can see them at close quarters, because the sheds in which the machines are housed are right alongside the road, and there is only about twice the width of a shed between the roadway and the place from which the machines take off.

If one sat on the road with a camera and a telescopic lens one could get "close-ups" of the machines, presumably without let or hindrance, as Martlesham is not a prohibited area. But one would certainly be prosecuted if one published such photographs.

THE COMPETITORS.

Therefore all one can do is to give a list of the machines which are competing. One has not seen them personally, so one will not guarantee the precise accuracy of one's statements, but one is probably not far wide of the mark. Taking them in alphabetical order, the machines are as follows:—

Armstrong-Whitworth Aircraft Ltd. have entered the Atlas, with a Jaguar engine. This machine has already earned for the firm quite a useful order as a Bristol Fighter replacement, for Army co-operation work. But the makers consider that it is also capable of carrying the load and doing the job of a General Purpose machine.

The Bristol Aeroplane Co. Ltd. have entered the Bristol Beaver with a Jupiter engine. This is understood to be a very good effort by our pioneer aircraft firm and is likely to put up a fine show.

The de Havilland Aircraft Co. Ltd. have got two machines in the Competition. One is the Stag which is frankly a D.H.9a with a Bristol Jupiter VI engine in it. There may be certain modifications about it, but in the main it is the old machine with a new engine. The other machine, officially known as the Hound, which has a Napier Lion engine, is generally considered as the likely winner of the Competition.

It is a development of the de Havilland Dingo, which is already pretty well known, but its speed is such that somebody described it as "going like a bat out of Hell." For which reason it is commonly known in clubs and places where they aviate as the Dingbat. Which strikes one as being rather a nice name although it may not exist in a zoological dictionary.

Anyhow, the Dingbat is commonly said to have a speed of 165 m.p.h.—which information does not come from the de Havilland Company, who are themselves remarkably reticent on the subject.

The Fairey Aviation Co. Ltd. have two machines in the Competition. One is the Fairey IIF, with a Napier Lion engine, which was illustrated last week, and the other is the Fairey Ferret, which is a smaller machine, with a Bristol Jupiter VI engine, but carries the same load. One does not know whether it carries it faster, or whether being a smaller and lighter machine it is considered handier to fly and land. But, knowing the habits of the Fairey Company, one imagines that the Ferret must have some particular feature to recommend it as distinct from the IIF, and *vice versa*,—for Mr. Fairey has a habit of getting it both ways.

Again one writes without any information from the firm, but one has the general impression that the IIF is not very much slower than the speed credited to the Dingbat.

The Gloster Aircraft Co. Ltd. have entered a machine called the Goral, with a Napier Lion engine. This, to the best of one's memory, is the first large General Purpose machine the Gloucester people have built. They have built two-seaters such as two-seater Grebes for training, and so forth, but they



COMPETITION.—Italy's Fighters. An array of Ansaldo-built Dewoitine single-seaters, with Jupiter engines built under indirect license from the Bristol Aeroplane Co. by the Alfa-Romeo Co., are here seen being inspected by the Italian Air Staff.

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have never attempted to turn out anything in the way of a General Purpose machine, or even an Army Co-Operation machine. The result will be watched with interest.

The Westland Aircraft Works have entered a machine called the Wapiti, with a Bristol Jupiter VI engine. Very little has been heard about this, because comparative secrecy is easier at Yeovil than it is in the immediate vicinity of London, where pilots and engineers and people, and the design staffs and so forth, get together and talk frequently. About all one can gather about the Wapiti is that it is built almost entirely of standard D.H.9a fittings, but is an entirely different machine in its general arrangement.

If this be true it speaks well for the Westland design staff. There must be thousands of pounds' worth of D.H.9a fittings in various parts of the country and the tools to make more of them on a mass-production basis already exist. If the Wapiti can be built out of existing material, or material which can easily be reproduced, and yet has a very much better performance, and is a better flying machine, than the D.H.9a, the Westland people have really achieved something. And they certainly do deserve success, for they have done an immense amount of very good work since the War without much reward.

Vickers Ltd. have entered two machines. One is the Vespa, with Bristol Jupiter VI engine, which was seen at the R.A.F. Pageant last year. The other is the Valiant, also with a Jupiter VI, which, one is told, is the latest development of the Vixen, the machine which was second in the King's Cup Race last year, from which also was developed the Valparaiso, the type which was supplied to the Portuguese and Chilean Governments last year.

Practically all these machines have been built entirely as private ventures with the intention of selling them to foreign Powers if the Air Force would not have them. The only thing the Air Ministry experts had to do with them was to pass the drawings and stress-diagrams before the competition, as approving the machines as airworthy if bought for the R.A.F.

Also, of course, the machines have had to pass the A.I.D. inspection. But then the A.I.D. in these days are regarded as the aircraft constructor's best friends. The A.I.D. officials are practical men and not theoretical experts. And they are only concerned with the material and workmanship, so that they are in fact rather an insurance against criticism by Air Ministry experts.

THE POINT OF THE JOKE.

Now here is where the joke comes in. The statement that the best speed of the fastest of those machines is about 165 miles an hour is probably within a mile or two of strict accuracy. And that being so, the probability is that the

ON OFFICIAL MIS-STATEMENTS.

In the last issue of *THE AEROPLANE*, dated Mar. 30, there appeared a statement, taken from the Hansard report of the debate in the House of Lords, that the Duke of Sutherland, replying to Lord Gorell's question as to whether the Savage-Bramson Anti-Stall Gear was being used, said that it, the Savage-Bramson Gear, "has been found in air tests to be unsuitable for twin-engined machines (Virginias) but suitable for Bristol Fighters."

In commenting on this astonishing statement, one questioned the intelligence of the test pilots who had made such a report to the Higher Authorities, and one said that there was every possible reason for using such an indicator on a big heavy machine which showed no signs of stalling till it was actually stalled. Also one said that it was particularly important to indicate that such machines were on the verge of stalling when turning.

One is glad to hear, by a somewhat circuitous route, but on none the less reliable authority, that the pilots themselves strongly recommend that anti-stall gears should be fitted to big machines.

One learns that the actual advice to the experts at the Air Ministry was that the Bramson Gear *as made at present*, for use on smaller and lighter machines, is not suitable for use on Virginias because it has not enough power to move the control column and wheel against the various inertia forces and aerodynamic forces operating on it in such a big machine.

DISTORTION IN TRANSIT.

All of which means simply that to be of use on a Virginia, or other big heavy aeroplane, the Bramson Gear needs a bigger and more powerful mechanism to give the control column the necessary kick to warn the pilot that the machine is on the verge of stalling. But, readers will perceive, by the time the perfectly sound and sensible verdict of the practical pilots has filtered through the minds of the experts at the Air Ministry and the other people who have the job of supplying replies for Government representatives in

slowest of them which is any use at all has a speed of 1 m.p.h., or perhaps a little more.

This means that our General Purpose machines of the future will be something in the region of 25 miles an hour faster than our single-seat fighters. And single-seaters are supposed to be pursuit ships able easily to catch and destroy poor heavily-loaded G.P. machines.

One heard only the other day of a competition over a 100-mile course between several single-seat fighter squadrons. Some of the wise people who did not want to have trouble with their engines went round the course at something below full throttle and did an average speed of something less than 130 m.p.h. Some of the unwise let loose their superchargers at a height of only a few thousand feet, when the superchargers were intended not to be used below 15,000 feet, and after going quite fast for a little while made forced landings along various parts of the course. And the best speed, due to the people who ran their engines pretty nearly all out for the whole way, was something under 140 miles per hour.

To the credit of the designers of those single-seaters one must say that they were all loaded up with bomb-racks and wing-tip lights and all the other clumsy outside gadgets which the Air Ministry experts insist. But the machines themselves had all been built to the specifications of the Air Ministry experts, and that is probably what accounts for the low speeds.

Two and a half years ago, at Dayton, Ohio, U.S.A., one saw an ordinary Service squadron of the U.S. Army Air Service put twelve Curtiss P.W.8s. with Curtiss D.12 engines in a similar 100-mile race. The fastest machine did just over 180 miles an hour, and the slowest did 168 m.p.h. with an engine which had been deliberately left untouched for 24 hours flying just to see what the effect would be. And the machines were carrying full fighting equipment, guns and all.

THE BEAUTY OF FREEDOM.

This suggests that it is quite time for the Air Ministry to organise yet another competition, this time for single-seat fighters which must be built entirely independently of the ideas of the Air Ministry experts, and built to the designer's own ideas after consultation with the Air Staff and fighting pilots.

The triumph of the General Purpose machines built complete freedom from the interference of official experts proves what one has preached for the last fifteen years in this paper. Which is that, given a free hand, the British aircraft designer and the British aircraft manufacturer can build the best machines in the world. One hopes that the lesson has now at long last been learned by those at the Air Ministry who are responsible for the proper equipment of the Royal Air Force.—C. G. G.

Parliament, the definite statement that the Savage-Bramson Gear is *wanted* by the pilots for the big machines has been distorted into a Government statement that the Bramson Gear is *no use* for big machines.

One does not pretend to know whether this distortion is the result of deliberate concealment of facts by experts at the Air Ministry who have a prejudice against the Savage-Bramson Gear, or who may be interested in other stall indicators (which are not stall-controllers), or whether it is the result of mere omission of words by somebody trying to condense the amount of material supplied to the Duke of Sutherland for his reply, or whether it is the result of sheer stupidity somewhere along the lines of communication between the Duke of Sutherland and the people who did the testing. But, whichever it is, it is an example of one way in which progress is hampered and new ideas and new mechanisms are not put into use as quickly as they might be.

Just such a mistake as this may easily cause a delay of months in issuing some new life-saving improvement to the squadrons of the R.A.F. and in those months it is quite possible that a dozen or more people may be killed in accidents which would have been prevented if that particular improvement had been in use.—C. G. G.

ON WASTEFUL EXPERIMENTS.

One of the many reasons why progress in the design of British aircraft is so slow is shown in a recent issue of the Reports and Memoranda issued from time to time by the Aeronautical Research Committee. This report, officially known as R. and M. No. 1048, deals with "Slot and Aileron Control on a Wing of R.A.F. 31 Section, with Various Types of Ailerons." It deals with one of that apparently interminable series of wind-tunnel experiments made by Air Ministry experts with the Handley Page Slot Control, which experiments may perhaps have increased the stock of knowledge acquired by the said experts, but have produced lamentable little progress in the practice of aviation.

The first paragraph of this report reads as follows:

1. Model experiments on combined slot and aileron control h

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previously been made on Avro and R.A.F.15. wings, and some measurements have now been made on a wing of R.A.F. 31 section. The rotating type of auxiliary aerofoil was used, and three different types of balanced ailerons were tried, with the slot both open and closed.

The R.A.F. 31 type of aerofoil, with the raised nose, does not lend itself to the rotating type of auxiliary aerofoil; the increase of drag due to the recess under the nose when the slot is closed being very much greater than when the nose is nearly down on the chord. The "push forward" type would be preferable, if the forces were not prohibitive. But in view of the difficulties in moving the "push forward" type, it was decided to obtain some results for the rotating type.

To understand the true inwardness of these paragraphs readers must remember that the mechanism which is commonly known as the Handley Page Slot consists of a plate, in the form of a small plane (called by our neo-scientists an "aerofoil"), which is carried on the leading edge of an ordinary plane. When this plate is locked tight on the leading edge the wing then has its ordinary form. When the plate is moved away forward from the ordinary leading edge it leaves a slot open behind it.

Through this slot the air flows over the ordinary leading edge in such a way that it prevents the wing from stalling at angles bigger than those at which normally it would lose its ability to lift. And when the wing is at last stalled it is still under control by the ailerons. Thus, with the slot open, the machine remains under proper control and does not stall and drop its nose as it would do without the slot, or with the slot closed.

This moveable plate which opens or closes the slot is what in this report is dignified by the name of an "auxiliary aerofoil."

The slot-plate, or auxiliary aerofoil, is commonly worked in one of two ways. In one it is mounted on rods which protrude through holes in the ordinary leading edge. These rods are pushed forward and pulled back by suitable mechanism inside the plane, so that the slot-plate itself remains always parallel to the leading edge. In the other method the slot-plate is carried on arms fixed to a tube which runs along inside the plane, so that when the tube is rotated the plate is raised from its position in contact with the leading edge and moves upwards and backwards, thus opening the slot.

The former is the method to which the report refers as the "push forward" type." And the latter is the "rotating type" of auxiliary aerofoil.

SELF-EVIDENT FOLLY.

Now it is evident that when a plane has a turned-up nose (as in the R.A.F.31), if the slot-plate fits flush on the nose when it is down, it will have to go too far back when it is up for the slot to be any use. So, if the slot-plate be arranged to be in the right position when it is up, when it is down it will come below the up-turned nose of the plane and so will make a recess, as mentioned in the report.

Naturally, anybody with even the most elementary knowledge of aerodynamics, or in fact anybody without any knowledge of aerodynamics at all but just a simple natural ability to see in his own mind what air-streams do, would know that such a recess under the nose of the plane, caused by shutting down the slot-plate, would increase the drag so much as to spoil the performance of the wing. And anybody with any practical common sense would know that it is a mere waste of time and money to experiment at all with a wing whose usefulness had been destroyed in such a way.

And yet, such is the curious make-up of the scientific mind, that the Government servants employed on that series of experiments actually spent the Nation's time and money in experimenting with this obviously useless combination of plane and slot.

Having wasted time on the wind-tunnel experiments, and having wasted money on making the models for the test, they proceeded to write a four-page report, followed by twelve pages of figures which must have taken a lot of time to calculate. And they have published with it ten assorted diagrams much must have taken still more time to plot and draw and reproduce.

GOING BEYOND THE BRIEF.

Particular note should be made of one interesting fact. These experimenters, whose work was concerned solely with the aerodynamic effects of the slot on the R.31 type of plane, and not at all with mechanical contrivances, took upon themselves to say "The push-forward type would be preferable if the forces involved were not prohibitive. But in view of the difficulties in moving the push-forward type it was decided to obtain some results for the rotating type."

One submits that mechanical difficulties were none of their business. Their job was to find out what the slot would do on an R.31 plane. Having got those results, their job would be finished, and somebody else, a practical engineer, would then be charged with the job of discovering a method of

operating the push-forward type so that the forces involved should not be prohibitive. But, apparently, just because somebody has told them that the push-forward type is hard to work, these experimenters waste all this time and paper and ink, which means so much of the taxpayer's money, in making experiments on a type with a particular combination of slot-plate and plane which they themselves have stated to be useless in their first paragraph.

If our Experimental Departments are going to waste time leaving the waste of money altogether out of the question on experiments which are obviously useless before they are started, how can we expect to make any progress at all?

C. G.

ON REASONS WHY.

Readers of THE AEROPLANE have probably gathered by now that one has not a very high opinion of the intelligence of the technical experts employed by the Air Ministry, and that there is good reason for blaming on them, albeit indirectly, the undue number of fatal accidents in the R.A.F. But there is a certain amount of excuse even for these experts and here at any rate is one reason why things are as they are. The following advertisement appeared in *The Times* on March 18:—

AIR MINISTRY.

DIRECTORATE OF SCIENTIFIC RESEARCH.

VACANCY AT R.A.E.

SCIENTIFIC OFFICER REQUIRED primarily for research in connection with electrical ignition appliances.

Candidates should have first-class Honours Degree in Physics Electrical Engineering and have had some years experience in research of an allied character. Salary £350, rising by annual increments of £20 to £450 plus Civil Service bonus per annum, giving present remuneration of £504 14s. a year to £62 8s. a year with superannuation under Federated Superannuation System for Universities Government contribution 10 per cent. of salary, individual contribution 5 per cent.

Preference given, other things being equal, to ex-service men. Application must be made on a form to be obtained from the Chief Superintendent, Royal Aircraft Establishment, South Farnborough, Hants, to whom it should be returned (quoting reference No. A.2) not later than 6th April, 1927.

When one considers that any reasonably good commercial traveller of 25 to 30 years of age, without anything better than a Board School education, can easily make his £500 a year or so, one can estimate the kind of intelligence that the Air Ministry is likely to get at the price offered.

There is never any difficulty in getting men with the desired University and technical education, and further scientific experience, at the price. But what it means is that instead of getting men of both practical experience and world knowledge, the Air Ministry gets the typical examination wallah, full of science and without common sense—a man with a mentality very much like that of the Indian Babu devoid alike of ambition and initiative though loaded with formulae and useless knowledge.

So long as the Air Ministry is content with men of such types so long must we expect progress to be delayed at accidents to happen.—C. G. G.

THE QUIET BIRDMAN.

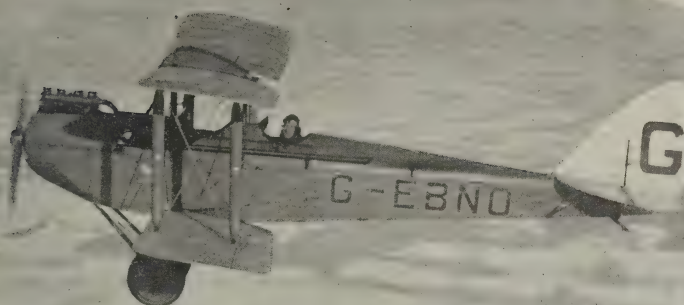
Sir Alan Cobham arrived in England from the United States on Mar. 17. One gathers that he is now engaged on a lecture tour in England.

Various letters from friends in the United States indicate that his lectures were considered extremely interesting by American audiences. One hears from Philadelphia that his lectures were very badly advertised in advance, so perhaps the tour may not have made a fortune for him. But he has certainly done a great deal to increase air-mindedness in the States and to give a good impression of the way in which aviation is developing in the British Empire.

As is usual in that most hospitable of countries, Sir Alan was lavishly entertained wherever he went and was shown everything that the American Aeronautical Community could show him. So one hopes that he has acquired a deal of knowledge which will be of use to the scheme which he and Lieut.-Col. Warwick Wright have for the popularising of aviation in this country by selling cheap aeroplanes.

Incidentally, one of the old hands in aviation in the States says in a letter that Sir Alan Cobham was made a member of the "Anciente and Secrete Order of Quiet Birdmen." This is an organisation originally founded, by that good little sportsman the late Ladislas d'Orcy among others, to bring together the really practical aviators of the States. Members wear a small pair of silver wings with the letters Q.B. in the centre, so that they may recognise one another and forego that without other introduction. The Association stands for good fellowship in every sense of the word among pilots. Among them there are no cliques, no "Kiwis" (or "ground-hogs" as the Germans used to call them) and no politics or axes grind. And in the United States, at any rate, there are Q.B.s in every airport.

"AS CHEAP AS A CAR TO RUN AND MAINTAIN AND CHEAPER THAN MANY TO BUY."



THE DE HAVILLAND MOTH

ENGINE - 30-80 H.P. CIRRUS

PRICE:

£730

READY TO FLY AWAY.

A MOTH ON VIEW IN LONDON.

For the convenience of those interested, who are unable to visit Stag Lane Aerodrome, a "Moth" is now exhibited in the Show-rooms of

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"THE safety of training on the De Havilland 'Moth' type of aeroplane is amply demonstrated by the latest figures issued by the Australian Aero Club, N.S.W. Section, which read as follows:—

Hours flown.....	440 h. 25 m.
Miles flown ..	26,400
Pupils passed out	11
Pupils under instructions.....	6

Two lady members of the Club are progressing very favourably with their training and no accidents whatever have occurred to pupils during instruction or after going solo."—*Extract from Official Report.*

THE DE HAVILLAND AIRCRAFT
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE ROYAL AIR FORCE.

The London Gazette.

Mar. 29.

GENERAL DUTIES BRANCH.—The following Plt. Offs. are promoted to the rank of Flt. Off.:—R. Kellett, G. P. Chamberlain (Jan. 30); P. E. Berryman, J. A. Hawkins, W. L. Robertson, R. C. Whitle, G. P. Butcher (Feb. 7). The following Plt. Offs. on probation are confirmed in rank:—D. J. R. Hylton (Feb. 26); W. J. H. Lindley (Mar. 5).
Flt. Lt. J. D. Breakey, D.F.C., is placed on half-pay, scale B, Mar. 28 to 31, 1927, inclusive.

The following Flt. Offs. are transferred to the Reserve, Class A:—E. Wornell (Mar. 30); A. E. B. Bateman, H. W. Pierce (Apr. 1).
Flt. Off. B. F. H. Harding relinquishes his S.S. comm. on account of ill-health (Apr. 1); P. D. Oliver, Lt. (E), R.N., Flt. Off. R.A.F., relinquishes his temp. comm. on return to Naval duty (Mar. 23) (substituted for the notification in the *Gazette* of Feb. 8); Plt. Off. on probation H. Francis resigns his S.S. comm. (Mar. 30).

STORES BRANCH.—Flt. Off. F. R. Lines is granted a perm. comm. in this rank with effect from Apr. 6, 1926, on completion of probationary service. The following Plt. Offs. are promoted to the rank of Flt. Off. (Mar. 10):—F. W. Felgate, L. F. Caunter.

ACCOUNTANT BRANCH.—Flt. Off. F. C. Langley is granted a perm. comm. in this rank (Mar. 30).

MEMORANDUM.—Flt. Off. J. N. Hewlett-Brooke relinquishes his temp. comm. on ceasing to be employed with the Electrical Services Works Co. (Mar. 31).

RESERVE OF AIR FORCE OFFICERS.—The following are granted comm. in Class A.A., General Duties Branch, as Plt. Offs. on probation:—J. M. H. Hoare, G. F. Simond, Lt. Strangman, J. D. Williamson (Mar. 14); K. A. N. Madocks (Mar. 16); B. B. F. Russell (Mar. 17).

Plt. Off. R. E. La F. Wyatt is confirmed in rank (Mar. 10); Flt. Lt. C. F. Briggs is transferred from Class C to Class A (Mar. 5); Flt. Lt. W. W. McConnachie is transferred from Class A to Class C (Jan. 8); Flt. Lt. W. R. S. Humphreys, A.F.C., ceases to be employed with the Regular Air Force (Mar. 31). The following relinquish their comm. on completion of service:—Flt. Off. F. V. Webb (Mar. 28); Plt. Off. C. O. Hinks (Mar. 25).

Appointments.

Week ending Apr. 4.

GENERAL DUTIES BRANCH.—Wing Commander G. F. Pretyman, D.S.O., O.B.E., to School of Naval Co-operation, Lee-on-Solent, to command, 28/3.

Flight Lieutenants B. McEntegart, to No. 1 School of T.T. (Apprentices), Halton, on transfer to Home Estab., 7/4. R. L. Crofton, M.B.E., A.F.C., to H.Q., Egypt, 12/3.

Flying Officers H. E. Falkner, to Aircraft Depot, India, 26/3. G. A. F. Bucknall, A. E. Rogenhagen, E. J. H. Wright, D. S. Green, and D. C. Shaw, to No. 1 Sqn., Tangmere, 1/4. (Hon. Flt. Lt.) L. P. Winters, to No. 4 F.T.S., Egypt, 12/3. J. M. Burd, M.C., to School of Naval Co-operation, Lee-on-Solent, 12/4. E. C. Roark, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 11/3. T. J. E. Thornton, to No. 9 Sqn., Manston, 28/3. E. R. Hockaday, to Record Office, Ruislip, 4/4.

Pilot Officers G. Bradbury, to No. 41 Sqn., Northolt, 7/4. H. G. Loch, K. S. Brake, and L. C. Bennett, to No. 1 Sqn., Tangmere, 1/4. H. F. Gover, to R.A.F. Depot, Uxbridge, 1/4. E. J. Martin, to R.A.F. Depot, Uxbridge, 4/4.

MEDICAL BRANCH.—Flight Lieutenants J. D. Leahy, M.C., M.B., B.A., to No. 1 F.T.S., Netheravon, 30/3. W. J. G. Walker, to Armament and Gunnery School, Eastchurch, 21/4. (Hon. Sq. Ldr.) H. E. H. Tracy and W. E. Barnes, to No. 1 School of T.T. (Apprentices), Halton, 1/4.

Flying Officers M. D. Rawkins, to No. 1 School of T.T. (Apprentices), Halton, 1/4. E. J. T. McWeeney, M.B., to Research Laboratory and M.O.S. of I., on appointment to a S.S. Comm., 24/3.
STORES BRANCH.—Flight Lieutenant F. E. Shersby, to No. 10 Group H.Q., Lee-on-Solent, on transfer to Home Estab., 15/3.

The Secretary of State for Air.

His Majesty the King honoured Sir Samuel Hoare with his presence at dinner on Mar. 29, at 18, Cadogan Gardens. His Majesty was attended by Lord Claud Hamilton. The following had the honour of being invited to meet his Majesty:—

Sir Philip Sassoon, the Duke of Sutherland, Marshal of the R.A.F., Sir Hugh Trenchard, Air Marshal Sir John Salmon, Air Vice-Marshal Sir John Higgins, Air Vice-Marshal Sir Philip Gage, Air Vice-Marshal Sir Oliver Swann, Air Vice-Marshal Sir Two Vesey, Air Vice-Marshal Scarlett, Air Vice-Marshal Brooke-Popham, Air Vice-Marshal Lambe, Air Vice-Marshal Sir John Steel, Air Vice-Marshal Longcroft, Air Vice-Marshal Munro, Sir Walter Nicholson, Sir Sigmund Dannreuther, Sir Geoffrey Butler, Mr. Oliver Hoare, Mr. C. I. L. Bullock, and Mr. Paul Paget.

Commissions in the Stores Branch.

The Air Ministry announces that 15 to 20 vacancies for permanent commissions in the Stores Branch of the R.A.F. will be offered for competition among young men between 23 and 25 years of age who have not less than five years' business experience in a firm of standing.

Accepted candidates will be gazetted to commissions as Pilot Officers on probation and will receive six months' training in their future duties. After a year's satisfactory service, they will be eligible for confirmation in their appointments and for promotion to the rank of Flying Officer. Promotion above the rank of Flying Officer will be by selection.

Inquiries for copies of the regulations and for application forms should be made in writing to the Secretary, Air Ministry, London, W.C.2. Completed application forms should reach the Air Ministry not later than May 23.

The Service African Flight.

The R.A.F. Flight under Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., left Heliopolis at 06.00 hours on March 30 and arrived at Khartum on April 2. On April 3 the Flight arrived at Mongalla and later in the day at Malakal.

The South African Air Force machines piloted by Major Meintjes, Capt. Tasker, Lieut. Schoeman and Lieut. Klopfer left Pretoria on March 29 on their way to meet the R.A.F. Flight at Kisumu.

The Service Cruise to Australia.

The R.A.F. flying-boat cruise to Australia which will take place in 1928 will be under the command of Group Capt. H. M. Cave-Browne-Cave, D.S.O., D.F.C., at present Deputy Director of Technical Development, R.A.F.

The equipment of the Flight will be four or six Supermarine Southampton flying-boats, each with two 450 h.p. Napier Lion engines.

The Flight will be based on Singapore, and the itinerary may include a cruise round the sea-board of Australia.

The Fleet Air Arm.

The *Times* of Apr. 4 states:—

A new course for officers qualifying as naval observers in the Fleet Air Arm begins to-day. The gunnery course in the *Excellent* will last until May 3, and the signal course in the *Dryad* until June 22. After a three weeks' interval the second part will begin at the R.A.F. School of Naval Co-operation, Lee-on-Solent, on July 12. The number of naval and marine officers trained as pilots is now over 120.

The Halton Magazine.

With this number the *Halton Magazine* begins the fourth year of its existence and it is certainly living up to the very high standard of the first number and continues to be essentially by the Apprentices for the Apprentices.

Every activity of the Station is discussed in the current issue and except that there is less Station Sports news than usual is as good as its predecessors. There is a description of the first flight of the *Mayfly*, designed and constructed by the Halton Aero Club, and on account of the activities of the Halton Model Aircraft Society with illustrations of its models.

The Halton Debating Society seems to be a healthy and enterprising institution—with about 10 meetings and a visit to the Houses of Parliament in three months. In connection with the latter it is interesting to note that the Halton Debating Society had a poor opinion of the debating powers of the House of Commons.

The humorists have been kept well under control in this number. But the statement that the Alsatian wolf-hound which attacked the Sergeant-Major was found lying by the roadside with its head bitten off deserves to be made immortal. [The jest is improved by knowing that the A.O.C., Air Vice-Marshal Lambe, is a famous breeder of Alsatis.—C. G. G.]

One recommends those Members of Parliament who think the R.A.F. Establishment at Halton is an expensive luxury, to subscribe to, and read regularly, the *Halton Magazine*.—C. M. MCA.

R.A.F. SPORTS AND PASTIMES.

Association Football.

R.N. and R.M. versus R.A.F.

The Navy and Marines gave the Royal Air Force a terrible hiding at the R.A.F. Stadium at Uxbridge on Saturday, April 2. Even though the R.A.F. gets beaten at Rugby, it does at any rate stand up to its hammering. But for the R.A.F. to be beaten by seven goals to nothing when six of the goals were scored by 10 seafaring men against 11 aviators is past salvation. And the score does not represent the full extent of the licking.

This is the fourth time in succession that the Nautics have won. The Inter-Service Soccer Competition began in 1920, and the R.A.F. has only beaten the Navy once—in 1923.

A Navy back hurt himself, apparently by an over-reach without touching anybody else, before half-time, when only one goal had been scored, and all the other goals came after he had left the field. The R.A.F. goal-keeper did his best, but over and over again he was hopelessly left in the lurch by the people who ought to have been helping him to defend. The less said about the rest of the R.A.F. team the better. C. G. G.

Inter-Service Boxing.

The Imperial Services Boxing Association Amateur Championship Meeting was held at Portsmouth on Mar. 31 and Apr. 1. The R.A.F. won the Flyweights (Other Ranks) Championship, AC. Love (R.A.F.) having beaten Sgt. Haslam (2nd Batt. Royal Regt.), on points, and Ldg. Stoker Tull (H.M. Submarine L.22) on points. The results were:—

OFFICERS' EVENTS.

Feather-weight.—Lt. W. Byas (R.A.) beat Flt. Off. A. C. Watkins on points.

Welter-weight.—Lt. C. G. H. Christian (R.A.) w.o. Flt. Off. Wiltshire scratched. Lt. Christian beat Sub-Lt. T. G. B. Winch (R.N.) in the second round.

Light-weight.—Flt. Lt. G. V. Howard beat Sub-Lt. J. Hefephath (R.N.) on points. Sec. Lt. H. Huxham (Loyal Regt.) beat Flt. Off. Howard in the second round.

Middle-weight.—Lt. Schoales (Loyal Regt.) beat Lt. Hopper (R.N.) on points.

Light-Heavy-weight.—Sub-Lt. Dobree (R.N.) beat Flt. Off. Nicholls the Referee stopping the bout in the second round.

YET AGAIN-CHRYSLERS WIN THE DAY!



Read these results of the recent Swedish Ice Races! In the 2/3 litre class the Chrysler '60' finished *first*. In the 3/4 litre class the Chrysler '70's' finished *first*, second, third, fourth and fifth! In the 4/5 litre class the Chrysler '80's' finished *first* and second!! Here is triumphant proof that Chrysler is the first car in the world to-day. Here, in compe-

tition with famous sporting cars of the world—where speed, acceleration, brakes, stability and control were all tested to their utmost—*Chryslers won!* The very same Chryslers you can see for yourself in any Chrysler dealer's showrooms. Test one for yourself—*on the road!* The dealer will gladly let you do so without charging you or committing you to buy!



Catalogues from Chrysler Motors Ltd., Kew Gardens, Surrey

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Heavy-weight.—Lt. C. F. Capper (R.A.), beat Lt. E. Gregson (R.N.), the Referee intervening in the third round. Lt. Capper beat Flg. Off. Chichester on points.

OTHER RANKS.

Fly-weight.—AC. Love (R.A.F.) beat Sgt. Haslam (Loyal Regt.) on points. AC. Love beat Ldg. Stoker Tull (R.N.) on points.

Feather-weight.—Or-S. Mudge (R.N.) beat Sgt. Beal (The Buffs) on points. Sgt. Beal (holder) (The Buffs) beat L-AC. J. Boteler (R.A.F.) on points.

Bantam-weight.—Sgt. Ballantyne (R.A.F.) beat Or-S. Thomas (R.N.) on points. Pte. Garland (Gordon Highlanders) beat Sgt. W. W. Ballantyne (R.A.F.) on points.

Light-weight.—L/Cpl. Jones (holder) (R.C. of S.) beat Or-S. Horstead (R.N.) on points. L/Cpl. Jones (R.C. of S.) beat AC. Garratt (R.A.F.) on points, after an extra round.

Welter-weight.—Cpl. Watts (Lancashire Fusiliers) beat Ld. Seaman Turner (H.M.S. Curacoa) on points.

Middle-weight.—L-AC. House (R.A.F.) beat A.B. Swan (R.N.) on points.

Light-heavy-weight.—Signaller Rodda (R.C. of S.) beat AC. Marshall (R.A.F.) on points.

An Eastchurch Re-union.

The Ninth Annual Re-Union Dinner of the Eastchurch R.N.A.S. Old Boys' Association will take place on April 23 at the Connaught Rooms, Great Queen Street, W.C.2. Full particulars from the Hon. Secretary, 47a, Woodland Street, E.8.

AIR AFFAIRS IN PARLIAMENT.

MARRIED QUARTERS AT HALTON.

In the House of Commons on Mar. 21, in reply to a question by COL. WOODCOCK, the SECRETARY OF STATE FOR AIR said that the average cost of the married airmen's quarters erected at Halton worked out at £501 per family.

Replying to a supplementary question, SIR SAMUEL HOARE said that these houses were not made of cork and that the price compared favourably with similar buildings in other parts of the country. SIR J. HALL said that these houses made a very good example which the Ministry of Health and local authorities might copy.

THE PRAGUE AERO EXHIBITION.

In the House of Commons on Mar. 22, in reply to a question by LT.-CDR. KENWORTHY, the UNDER-SECRETARY OF STATE FOR AIR said that there would be no British Aircraft Exhibit at the International Aero Exhibition at Prague next June. The Aircraft Industry had definitely decided not to take part in the Exhibition and in the present financial stringency it would be impossible to arrange for participation at Government expense.

[One would imagine from this question and answer that the S.B.A.C. was a subordinate department of the Air Ministry and that Sir Samuel Hoare was father and mother and General Providence to the aeronautical community. One wishes that the Trade would show a trifle less dependence on the Air Ministry.—C. G. G.]

THE COST OF CIVIL AVIATION.

In the House of Commons on Mar. 23, in reply to a question by MR. RENNIE SMITH, the SECRETARY OF STATE FOR AIR circulated the following reply:—

On the assumption that the purpose of the hon. Member's question is to ascertain the cost to the State per mile flown resulting from the division of the total amount of the subsidies paid each financial year by the total mileage flown on all British Air Transport Services, the figures are as follows:—

Year (1921-22), miles flown 259,000, average cost per mile 5/10; (1922-23), 778,000, 4/8; (1923-24), 1,004,000, 2/6; (1924-25), 890,000, 3/1½; (1925-26), 865,000, 3/2.

These costs, however, are misleading as no account is taken in them of the progressive increase in the capacity of the machines employed.

More comparable figures are furnished by the cost to the State per ton mile in respect of Imperial Airways Limited's services, which is as follows since that company began to operate:—

(1924-25), cost per ton mile 7/-; (1925-26), 6/11½; (1926-27) (estimated), 5/5½d.

THE AIRSHIPS.

In the House of Commons on Mar. 24, in reply to a question by MR. ROSE, the UNDER-SECRETARY OF STATE FOR AIR said that the airship now under experiment at Cardington would be inflated with hydrogen. The estimated cost of 5,000,000 cubic feet of hydrogen was £2,500. The cost of helium would be much greater.

In reply to a further question by Mr. Rose, he said that the total cost of the alteration to the Cardington airshed was £100,000. In reply to a further question by Mr. Rose, he said that the diameter of the airship under construction by the Airship Guarantee Co. at Howden was about 130 ft. and her length 710 ft. The contract provided for the payment of a contribution of £50,000 towards the company's capital expenditure on shed, plant, etc., and of a sum of £300,000 had been paid. The former sum and an instalment of £100,000 had been paid.

THE UNIVERSITY SQUADRONS.

In the House of Commons on Mar. 24, the UNDER-SECRETARY OF STATE FOR AIR circulated the following reply to a question about the University Squadrons by SIR H. BARTON:—

"I am very satisfied with the progress made with these squadrons to date, and should like to express my appreciation of the assistance which I have received from the university authorities in their development. They have undoubtedly stimulated interest in aviation in the universities. Each squadron now consists of about 50 undergraduate members and at Cambridge there is a considerable waiting list.

"In addition to flying training, courses of instruction have been arranged in aeroplane construction and rigging, engine construction and maintenance, wireless telegraphy, air navigation and other sub-

jects of aeronautical interest. The number of applications for commissions is very satisfactory.

"I am anxious to give every encouragement to the universities to undertake problems of aeronautical research and I hope that valuable results will thus be obtained."

BALLOON JUMPING.

In the House of Commons on Mar. 30, in reply to a question by COL. DAY, the SECRETARY OF STATE FOR AIR said that the usual Court of Inquiry had been held into the most unfortunate accident in which L-AC. E. A. Dobbs had met his death. The accident had taken place at a private aerodrome. The airman was on leave and acting in private capacity and the Air Ministry had no *locus standi* concerning the liability of the balloon manufacturers in question or any responsibility in respect of any of the circumstances attending the fatality. [But surely if a balloon is carrying 90 per cent. of a jumper's weight the Air Ministry is 90 per cent. responsible for the airworthiness and the regulation of the air navigation of that balloon.—ED.]

THE AIR PORT OF CROYDON.

In the House of Commons on Mar. 30, in reply to a question by COL. DAY, the SECRETARY OF STATE FOR AIR said that the completion of the improvements and reconstruction of the air port at Croydon would be approximately the summer of 1928.

THE SCHNEIDER TROPHY.

In the House of Commons on Mar. 30, LT.-CDR. KENWORTHY asked the SECRETARY OF STATE FOR AIR if the British seaplanes intended to take part in the Schneider Cup race are to be loaned by his Department; if they are the high-speed Supermarine-Napier, Gloster-Napier, or Short machines; when these aircraft will be completed; and what steps he will take, having regard to the short time available, to ensure that Great Britain is represented in the competition, if in their trials neither of the three seaplanes now being built attain a speed which would justify their competing in the Schneider Cup race?

SIR S. HOARE: "Entries for the Schneider Cup race are made by the Royal Aero Club and the Air Ministry has not hitherto accepted responsibility for ensuring the representation of this country in the competition. The question is, however, under consideration of making available for the race certain high-speed aircraft ordered by the Air Ministry of the types mentioned in the question; they are all due for the completion well before the date fixed for the race."

LT.-CDR. KENWORTHY: "Does the right hon. Gentleman not lend aeroplanes to the Aero Club for this race?"

SIR S. HOARE: "Not necessarily. We consider the cases on their merits each year."

LT.-CDR. KENWORTHY: "These are being lent from the Air Ministry this year?"

SIR S. HOARE: "No, Sir. If the hon. and gallant Gentleman will read the answer he will see that that is the question which we are considering now."

OBSERVATION BALLOONS IN THE R.A.F.

In the House of Commons on Mar. 30, in reply to a question by VISCOUNT SANDTON, the SECRETARY OF STATE FOR AIR said that personnel trained in all branches of observation balloon work were still on the active list. Training in this branch was being maintained and research was still in progress to perfect this arm. It would not be in the public interest to disclose the proposed war complements of these Units or the time which would elapse after the outbreak of war before they could be put in the field. The existing arrangements and provision in peace time were considered adequate to meet prospective war requirements.

AIR MISSIONS.

In the House of Commons on Mar. 30, the following information was circulated by the SECRETARY OF STATE FOR AIR in reply to MR. DALTON who asked what air missions had been sent by H.M. Government to assist the Governments of foreign countries since 1914 and what had been the duration of their service in each case:—

Apart from war-time missions, the following missions have been despatched by His Majesty's Government for the purpose of advising foreign Governments on air matters.

Chile.—An officer of senior rank was sent to Chile in 1926 and is still in that country.

Finland.—After a preliminary investigation by a senior officer the Royal Air Force another officer was lent for a period of two years from March, 1925; the engagement has recently been extended for further six months.

Greece.—Royal Air Force officers formed part of the Naval Mission during the periods from December, 1919, to October, 1920, and from August, 1922, to April, 1923. In response to an application for further assistance from the Greek Government two officers have recently proceeded to Athens.

China (Central Government).—A Royal Air Force officer was employed from February, 1920, to September, 1922.

In addition to the above official missions, a number of unofficial missions have proceeded to foreign countries, and in connection with these, informal advice and assistance in the selection of personnel have been given by the Air Ministry.

AIRSHIP CONSTRUCTION.

In the House of Commons on Mar. 30, in reply to a question by MR. ROSE, the SECRETARY OF STATE FOR AIR said that he was unable to accede to the request to place copies of the general arrangement plans of the two new airships in the Library. MR. ROSE said that £40,000 had been claimed and voted by the House for the work of drawing up plans alone and he would like to know if there would be anything like value for the enormous outlay at Cardington alone. SIR SAMUEL HOARE said that he was carrying out the policy of the right hon. Gentlemen opposite.

WIRELESS TELEPHONY.

In the House of Commons on Mar. 30, COL. DAY asked the SECRETARY OF STATE FOR AIR if the system of short-wave wireless telephony between airships in flight and air stations had been successful in eliminating jamming. SIR SAMUEL HOARE: "The answer is in the affirmative."

Blackburn

BLUEBIRD

WINNER of the GROSVENOR CUP 1926

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THE PROPOSED AMALGAMATION OF THE R.Ae.S. AND THE I.Ae.E.

The Annual General Meetings of both the Royal Aeronautical Society and of the Institution of Aeronautical Engineers were held on Tuesday, Mar. 29, and at each the proposal that the two bodies should amalgamate on the terms proposed by the Joint Committee under the Chairmanship of Sir George Beharrell was debated.

At the Royal Aeronautical Society's meeting a resolution, moved by Mr. H. T. Tizard and seconded by Mr. J. D. North, was carried. This resolution was in the following terms:—

That this meeting supports the action of the Council in endeavouring to come to an agreement with the Institution of Aeronautical Engineers on the lines discussed in the Beharrell Report, and authorises the Council, if satisfied that the general body of the voters of this Society and of the Institution of Aeronautical Engineers endorses their views, to carry the amalgamation into effect with such alteration to the draft terms of the agreement that appear to them advisable.

At the meeting of the Institution of Aeronautical Engineers the following resolution was carried:—

That this Institution being of opinion that it is desirable in the best interests of the British Aeronautical profession, that this Institution should amalgamate with the Royal Aeronautical Society, hereby resolves to amalgamate with the Royal Aeronautical Society upon the terms agreed between the Council and the Council of the Royal Aeronautical Society, and dated January 27, 1927.

And this Institution authorises the Council of the Institution to do all things necessary for the purpose of carrying the agreed terms into effect.

The resolution passed by the Royal Aeronautical Society does not definitely accept the terms agreed between the representatives who formed the Joint Committee. It approves the general principle of amalgamation, but authorises the Council to seek to modify the agreed terms.

On the other hand, the resolution passed by the Institution of Aeronautical Engineers accepts the agreed terms and authorises the amalgamation on those terms alone.

It is an open secret that many members of the R.Ae.S., particularly among those holding the grades of Fellow and Associate-Fellow, have felt that the terms, which give the rank of "Fellow" of the Society to those who are "Members" of the Institution, imply some lowering of the standard of Fellowship of the Society, and that the fact that, if the terms be accepted, a number of Associate-Fellows R.Ae.S. will automatically become Fellows because they were Members of the Institution is unfair to the remaining Associate-Fellows.

It is understood that, in addition, there is a good deal of opposition to the terms of the suggested agreement on the grounds that under them the Institution receives unduly generous treatment.

It is to be hoped that the Council of the Aeronautical Society will be able to satisfy themselves that the majority of the members approve the amalgamation and that they will not propose any substantial modification of the terms suggested by the Joint Committee, as otherwise it is very doubtful whether the amalgamation will ever be consummated.

It may be remembered that proposals for a similar amalgamation were rejected decisively by the Institution about two years ago. At that time the Institution was in a somewhat critical financial position, and amalgamation would, it was felt by the majority of its members, have been tantamount to a confession that the Institution had failed to achieve its objects.

To-day the Institution is in a much stronger position than it was two years ago. It is perfectly ready to carry on as a separate concern, but it feels that amalgamation on satisfactory terms and in the presence of a cordial spirit of co-operation for the joint aims of the two associations would produce more satisfactory results under present conditions than would the continued existence of two separate bodies.

There have been certain signs that a section of the membership of the Royal Aeronautical Society does not regard amalgamation in this light at all, but considers that it should rather involve the suppression of the Institution's aims and the relegation of its members to a harmless obscurity. If this section does succeed in forcing the Council of the R.Ae.S. to seek any serious modification of the proposed terms of amalgamation it is very likely that the members of the Institution will refuse to accept those modifications.

It is, however, fortunately rather unlikely that this will occur.—W. H. S.

LORD THOMSON AT GLASGOW.

Lord Thomson, Chairman of the Royal Aero Club, who was Secretary of State for Air in the Labour Government, paid a visit to the aero-engine works of Wm. Beardmore and Co. Ltd. at Parkhead and their aeronautical works at Dalmuir on April 4.

During the afternoon he addressed a meeting of cadets from the public schools at Glasgow. He said that every lad who learned to fly was performing a public duty and he wanted to see the young men of the country interested in aviation. The military airman had to go through evolutions and manoeuvres which required tremendous skill to make him a better man in the air than any possible enemy, but commercial aviation was, to all intents and purposes, safe.

INSULATING "NEON."

"Aeolus," or The Future of the Flying Machine. By Oliver Stewart. Kegan Paul, Trench, Trubner and Co. Ltd. 96 pages. Each, post 8vo (whatever that means) boards 2s. 6d. net. Or post free from Aeronautics Ltd., 14, Bream's Buildings, E.C.4, 2s. 9d.

Mr. Oliver Stewart, late R.A.F., is to be congratulated on producing a diminutive book which is an amusing and yet effective counterblast to the pompous and portentous "Neon." Whether he rushed it through on purpose or whether it happened to come out at the right moment one does not know, but it is most opportune.

"Aeolus" is one of those pocket books in the "To-day and To-morrow" Series which has done so much to educate in a superficial but quite useful way people who have neither the time nor the inclination to read solid books on science. It is in the direct line of succession of "Callinicus—a Defence of Chemical Warfare," by J. B. S. Haldane, and "Paris, Captain Liddell-Hart's excellent attempt to convince the World that future wars are going to be run by clockwork. The majority of the series bear the names of mythical persons who had to do with the subject-matter of the respective books. Aeolus being the God of the Winds, the title is a well chosen as the others in the series.

Of course one could pick holes in Captain Stewart's book. One wishes that he would not use the word "since," which is an adverb or preposition of time, when he means "because," as a conjunction, irrespective of time. As an offset one thanks him for using the words "aircrew" and "propeller" in their proper senses.

One believes that he is a trifle optimistic about the possibilities of what he very rightly calls the "moving-wing aircraft," to distinguish it from the "fixed-wing aircraft," but then he always is inclined to become possessed of enthusiasms, both pro and anti. Still, the book is so frightfully funny that one can forgive him almost everything.

His reference to "the sardine-theory so popular with our London transport controllers" on the grounds that "the more you squeeze the passenger the more money oozes out of him" is delightful. One hopes that it will not infect Imperial Airways Ltd.

His notion that if statesmen were prevented from meddling with the technical development of aircraft they would turn to controlling, organising and generally bleeding the private owner, is probably quite sound. The regulations which he suggests are really funny and so horribly lifelike. For instance, the scheme of having a 40 m.p.h. minimum speed limit because the official mind will probably grasp the notion that an aeroplane crashes through going too slowly and not through going too fast is just what probably would happen. And his pen-picture of the prosecution of an unfortunate private owner for loitering to look at the scenery at 8 m.p.h. on a moving-wing machine is quite elevating.

One likes particularly his idea that the new regulations would provide the police with the opportunity of displaying their keen sense of duty. He says "They will ignore the old-fashioned and mundane murders and will say with Horace Walpole 'Do not wonder that we do not entirely attend to the things of earth; fashion has ascended to a higher element.'"

The book is very small for half-a-crown, but it is so delightfully funny that it is well worth the price and the really are sensible ideas behind the jesting.—C. G. G.

A FOOLISH PROJECT.

There is a rumour going about to the effect that somebody or other has a project to run an aviation meeting in the Isle of Man some time in the Summer and that competitors are to be asked to fly from the Lancashire Aero Club's aerodrome to the Isle of Man. One hopes that this is only a rumour and that nobody is so crazy as to suggest seriously that number of valuable Club Moths should make a trip over six miles or so of sea.

The fact that Col. Sempill, with Major Hemming and Messrs. Courtney and Broad flew four Moths from Holyhead to Dublin without falling into the sea is no argument in favour of flying to the Isle of Man. That journey was done to impress the Irish Free State Air Force, with an eye to business. This affair would only make a Douglas Holiday.

Nobody has more faith in the Cirrus engine and in our other excellent British engines than one has oneself. But the beauty of mechanisms are liable to momentary derangement. At there are many moments in the hour or so which one would take a Moth to fly from England to the Isle of Man.

If an aeroplane crashes and kills its pilot on land ordinary papers make more than enough fuss about it. For a Moth, or any aeroplane concerned in a deliberately spectacular flight, to be lost at sea, would produce an amount of undesirable publicity enough to fill a book as big as "Neon."

One hopes, therefore, that if anybody does happen to be foolish and thoughtless and ignorant as to have any idea of organising a flight from Woodford to the Isle of Man, he should forthwith proceed to forget it.

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MAN AND THE MACHINE.

In one sense it was perhaps unfortunate that the paper by Group-Captain Martin Flack, read before the Royal Aeronautical Society on March 10, should have synchronised with the debate in Parliament on the Air Estimates, for this coincidence reduced both the size of the audience at the lecture and the amount of public attention which the paper would otherwise have attracted.

On the other hand it may be all to the good that this particular paper should have been read at a time when public attention had been drawn to the subject of accidents in the R.A.F. by the Prime Minister's extensive and sympathetic statement in the House. For, although Group-Captain Flack did not deal specifically with accidents, his paper does bear very directly upon some at least of the causes of the "errors of judgment" to which so many accidents are attributed.

THE PAPER.

In a very condensed form the more important points of the paper are as follows:—

Man is the controlling and co-ordinating mechanism of the aeroplane, and the study of man in relation to the machine is necessary for the progress of aviation.

Teaching a man to fly consists of teaching him to respond to information received through his senses concerning the movement of his machine by making certain movements of the arms and legs which will safely control the aeroplane.

Between receiving the information through his senses and making the required controlling movements he must in some cases exercise his judgment. As he becomes more experienced he will tend more and more to make certain movements automatically in response to certain sensations.

It is the degree of automaticity shown in flying which differentiates the skilled and experienced pilot from the inexperienced one. In the early stages of flying the novice relies almost entirely on information given him through the sense of sight—either from observation of the earth or of the instruments on his dash-board. During this stage every control movement is the result of conscious effort.

As he gains experience he learns to take account of information supplied by other senses—the "feel" of the controls, the note of his engine, etc.—and at the same time the amount of conscious effort needed to make a given control movement becomes less, and he acquires a more or less automatic response to the signals given through his senses.

THE IMPORTANCE OF SIGHT.

The most important signals on which the pilot depends are those received by sight. It is impossible to fly safely without the use of the eyes, and the extreme difficulty of fog and cloud flying arise because of the restriction of sight.

Because sight is so important it is important to arrange that the pilot's eye shall be able to receive all necessary signals with the greatest ease. If the pilot's eye has to wander round a group of instruments arranged haphazard on his dashboard to collect essential information, time is lost. Instruments ought to be grouped according to their functions—all engine instruments in one quarter, all flying instruments in another, and so with navigation and wireless instruments.

The eye has only a limited central field in which figures and letters can be read, and instruments which have to be read should be arranged to come easily into this central view. The eye can however perceive a reasonably bright light over a very wide field, and when warning signals are given by lights they may be set to one side out of the central field.

When learning to fly pilots are taught to form judgments by sighting the horizon along the nose of their machine. If they are asked to fly a machine where their seat is in a very different relative position to the nose they will be apt to be misled in their judgment. To avoid this the seating position of the pilot should be as far as possible standardised.

"HANDS."

Not all men are endowed with the ability to make the co-ordinated movements of hand and leg required to control an aeroplane. Some are heavy-handed, some heavy-footed, more still cannot use arms and legs together in unison. If it is possible to detect those suffering from such disabilities, either before training or at an early stage in training, time wasted in instruction can be saved, and damage both to machines and individuals avoided.

Attempts had been made to measure the probable aptitude of pupils for some time past. At first these efforts were based on the measurement of the reaction time to simple signals. The prospective pupil was required to press a key immediately a light, sound or touch signal was perceived, and the time between the giving of the signal and the response was measured. It was believed that all good pilots gave quick responses, and that all who gave quick responses would probably have the capacity to become good pilots.

This simple kind of test was not satisfactory, because it was found that a number of persons all giving equally quick responses to such simple stimuli might differ very widely in their ability to perform a complicated muscular movement accurately.

THE REID REACTION APPARATUS.

To overcome this defect Flt. Lt. Reid designed an instrument which measured the time taken by an individual in performing actual movements of the type necessary to control an aeroplane. (This instrument—the Reid Reaction Time Apparatus—was fully described in *THE AEROPLANE* of Aug. 12 and 19, 1925, and that description requires no modification to-day.)

This apparatus is so far only undergoing tests, but at one of the flying training schools the opinions as to the pupil's aptitude formed from their records on the instrument show an 80 per cent. agreement with the instructors' reports on the same pupils after a considerable number of hours of flying instruction. Of those deemed to be "promising" from their records on the instrument over 80 per cent. were reported to be above the average at the end of Avro Training. Of those deemed unlikely to become satisfactory pilots, 77 per cent. were classed as below average by their instructors.

The real agreement between the instrumental verdict and that of facts is probably better than these figures suggest, as the number of pupils for whom statistics are available is not very large, and there are a number of cases in which final verdicts from the school are not yet available.

The apparatus has also shown that it is useful as a practice machine—not of course to teach flying—but to correct defects of arm and leg movements detected by instructors in flying.

In these tests the instructors have not been informed of the results of the pupil's record on the Reid apparatus, and no effort has been made to influence training as a result of the tests.

(This section of the paper was illustrated by the exhibition of a number of records made by good and bad subjects, and by a demonstration on the actual machine, given by Sq. Ldr. Howett representing the really skilled pilot and by a non-flying member of the audience who made quite a promising record.)

STANDARDISED CONTROLS AND COMFORT.

To make things as easy as possible for the pilot standardised positions and methods of working of all controls are very desirable. A pilot will get used to the position of throttle, etc., on the machine to which he is used. If he then gets onto a different machine, in an emergency he will reach out to the accustomed position of the control he needed, and if it is not there the result may be serious.

Pilots should be made as comfortable as possible, to reduce fatigue on long flights, and the risk of head and face injuries in a crash ought to be reduced by proper padding of the cockpits.

THE DISCUSSION.

MAJOR BRACKLEY inquired how air line pilots showed up in the Reid gear. He emphasised the great importance of signals conveyed by sight, and suggested that the medical section of the Air Ministry might profitably investigate the effect of noise on the performance of pilots.

CAPT. SAYERS agreed that the skilled pilot appeared to respond to his senses automatically. But was the response really automatic. Was not automaticity carried too far a serious danger? The real mark of a good pilot was that he could when necessary refrain from responding automatically.

SQ. LDR. HOWETT insisted on the importance to the pilot of a compactly arranged and easily readable set of instruments. He thought the essential quality of a good pilot was confidence.

CAPT. KEAN said that in any appliance calling for mental application it was important to make the mechanical movements as simple as possible. No typist could carry out his work efficiently if the position of the letters on his keyboard were to be changed frequently, and the pilot equally ought to be able to rely on a standard arrangement of instruments and controls.

WING CDR. T. R. CAVE-BROWNE-CAVE thought highly of the value of an all-round ability to play games as a test of a pupil's probable ability. He agreed that more comfort would improve a pilot's endurance, but in the Navy they found it desirable not to give a man too much comfort when it was essential to keep him continuously alert.

MAJOR C. C. TURNER thought accidents were due less to lack of skill than lack of judgment, and he hoped methods of testing judgment might be devised.

MR. COLEBROOK said that if the Reid instrument could weed out poor pilots it would serve to reduce accidents.

A speaker whose name one failed to catch said that many railway accidents were caused by automatic response to a given signal instead of the use of judgment. It might really be safer to change controls about continually so as to avoid the risk of unreasoned automaticity.

COL. THE MASTER OF SEMPELL disagreed fiercely from Wing Cdr. Cave-Browne-Cave as to the value of comfort. He thought comfort absolutely essential.

GR. CAPT. FLACK in reply to some of the points raised said that civil pilots varied in their records on the Reid gear. Some were very good indeed. As to the desirability of automaticity he thought it was probably a matter of definition. Automaticity could be dangerous, but it seemed to be essential in flying. Tests of judgment presented very serious difficulties. He thought that the naval people who could not be allowed comfort were probably much more comfortable than the pilot of an aeroplane—who was cramped and fixed in position. Fatigue caused by discomfort spoiled his efficiency and should be avoided as far as possible.

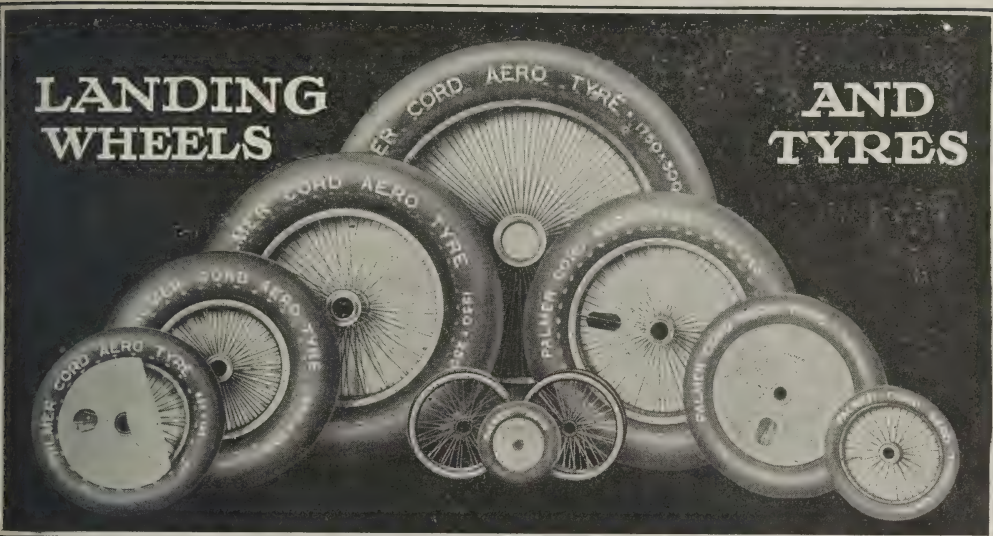


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300×60	16	111.12	25.4	Central	"	176	178.	44.45	Central	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	"	179	178.	55.	132/46	"	149	185.	55.	Central
"	172	130.	38.09	Central	650×125	119	178.	55.	132/46	"	155	220.	66.67	Central
675×60	21	160.	28.	Central	"	147	178.	55.	Central	"	166	185.	55.	125.60
"	180	150.	38.09	104/46	"	188	120.	34.92	Central	900×230	107	185.	55.	Central
"	186	120.	34.92	Central	750×125	77	178.	44.45	132/46	"	108	185.	55.	125/60
"	90	150.	38.09	Central	"	92	185.	55.	135/50	"	128	220.	66.67	Central
650×65	78	178.	44.45	132/46	"	95	185.	55.	Central	"	137	250.	80.	Central
"	79	178.	44.45	Central	"	99	178.	38.89	132/46	"	157	185.	80.	Central
"	100	178.	38.09	132/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
"	101	178.	31.75	132/46	"	176	178.	44.45	Central	1100×220	134	220.	66.67	Central
800×75	21	160.	28.	Central	"	179	178.	55.	132/46	"	136	250.	80.	Central
"	180	150.	38.09	104/46	800×150	161*	185.	55.	135/50	975×225	192	185.	60.32	Central
"	186	120.	34.92	Central	"	162*	185.	55.	Central	"	194	185.	55.	125/60
"	190	150.	38.09	Central	"	163*	185.	66.67	135/50	1250×250	133	250.	80.	Central
700×75	78	178.	44.45	132/46	"	169†	185.	55.	135/50	"	154	304.8	101.6	Central
"	79	178.	44.45	Central	"	177	185.	55.	135/50	1500×300	115	304.8	101.6	Central
"	100	178.	38.09	132/46	"	183	185.	55.	Central	"	126	304.8	152.4	Central
"	101	178.	31.75	132/46	"	211*	185.	60.32	135/50	1750×300	139	400.	152.4	Central
00×100	77	178.	44.45	132/46	1000×150	167	185.	55.	125/60	"	191	350.	150.3	Central
"	92	185.	55.	135/50	"	174	250.	80.	Central	1750×350	193	400.	125.	Central
"	95	185.	55.	Central	"	182	185.	55.	Central					
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PARACHUTE EXPERIENCES.

People who are interested in the practical side of aviation should on no account miss the lecture on parachutes which is being given to-morrow, Thursday, Apr. 7, before the Royal Aeronautical Society, at the Royal Society of Arts, John Street, Adelphi, by Flt. Lt. F. O. Soden, D.F.C.

The lecture is at the unholly hour of 5.15 p.m., so that it spoils tea and dinner and the afternoon's work alike. The ingenuity of the Royal Aeronautical Society in doing things at the wrong time is again made manifest. Nevertheless the subject is of such intense interest, to aviators and designers alike (for designers have to provide accommodation for parachutes), that everybody ought to be at the lecture who can induce his employer to let him off for most of the afternoon.

The lecture will be particularly interesting because Flt. Lt. Soden will show for the first time outside official circles two films, one of them a slow-motion film, showing exactly what happens in the course of a parachute drop. The subject-matter of the lecture will cover trend of design, the use of parachutes in the R.A.F., causes of accidents, types of parachutes and their details, and how R.A.F. personnel are trained in their use. Flt. Lt. Soden will also make a statement as to the number of lives saved by parachutes in this and in other countries.

THE LIMITATION OF AIR ARMAMENTS.

The sitting of the Preparatory Commission for the Disarmament Conference at Geneva on April 1 dealt with Air Armaments.

Monsieur Paul Boncour (France) appealed for the limitation of air force personnel, and his view was supported by the Belgian, Swedish and Dutch delegates. Lord Cecil said that the limitation of personnel did not provide a practical solution, and asked for a further investigation.

On the following day Lord Cecil said that no Government in the world was more anxious than the British Government to limit air armaments, for, apart from any other consideration, they were armaments of the one form with which a fleet could not deal. The British Government was profoundly anxious to take a real step towards the limitation of armaments, but it would prefer that the first step should be one which all could take without difficulty.

Monsieur de Brouckere (Belgium), discussing the relative provision of shore-based and sea-based aircraft, considered that aircraft should be classed rather according to the point to which they could reach than according to the point from which they started. He thought that if he found himself near a bomb dropped from an enemy aeroplane he would not care whether the offending aircraft had taken-off from a vessel at sea or from a land aerodrome.

THE HUDSON BAY PATROL.

A special squadron of the Royal Canadian Air Force, comprising eight aeroplanes, and twelve officers and fifty other ranks, is being formed for use in the Hudson Bay Territory. This squadron is now being established at Camp Borden, Ont., and it will proceed to its new base at Hudson Bay in June, where it will remain until October, 1928.

Three bases will be established and the 500 miles of Straits will be patrolled to determine navigation conditions during the open season. During the closed season the squadron will make regular daily flights, when possible, surveying the ice conditions and collecting comprehensive meteorological records, which it is expected will be of high value to mariners.

It has been reported that six Fokker aircraft have been purchased in the United States for the use of this squadron.

THE SEAPLANE HEIGHT RECORD.

On March 29 *Lieut. de Vaisseau* Demougeot, of the French Navy, broke the world's seaplane height record by reaching a height of 31,164 ft. on a Loire-Gourdand-Lesieur seaplane fitted with a Gnome-Rhone-Jupiter engine.

The previous record has been held since March 11, 1924, by M. Sadi Lecoq, who reached a height of 29,454 ft. on a Nieuport-Delage seaplane (300 h.p. Hispano-Suiza engine).

THE FLIGHT ROUND THE ATLANTIC.

On Mar. 29, Col. the Marchese de Pinedo, who has now covered over half of his flight round the Atlantic, on a Savoia 55 flying-boat (two 550 h.p. Isotta-Fraschini engines), arrived at New Orleans from Havana, where he received a warm welcome from the American populace. He left Havana at 06.55 hours and arrived at New Orleans at 12.00 hours.

On Apr. 3 he arrived at San Antonio, Texas, from New Orleans.

On the way he alighted at Galveston, where he stayed for three hours.

At San Antonio he alighted on Medina Lake, about 30 miles out of the town, where, although the place is difficult of access, he was greeted by many hundreds of people. For the last part of the journey he was escorted by five U.S. Air Corps aeroplanes.

THE SCHNEIDER TROPHY CONTEST.

The B.B.C. broadcast the following in its second New Bulletin on Mar. 31:—

For the first time since the war Germany will compete for the Schneider Cup. This is the first air meeting in which Germany has co-operated with the Allies.

Like most of the aviation news which is broadcast, this is inaccurate. If the B.B.C. had taken the trouble to find out they could have discovered that the entries for the Schneider Trophy Contest (which they nearly always miscall the Schneider Cup Race) closed on Mar. 1 and only England and America challenged Italy.

Perhaps the B.B.C. referred to a future contest. But it is anticipating somewhat, for in the event of a win by America the Trophy will be won outright and "there won't be no next time."—G. D.

E. R. CALTHROP.

With much regret one records the death on Mar. 29 of Mr. E. R. Calthrop, the inventor of the famous "Guardian Angel" parachute which did so much good work for the Allied Flying Services during the War.

Everard Richard Calthrop was born on Mar. 2, 1857, and was educated at Uppingham. He began to learn engineering at the works of Robert Stephenson and Co., Newcastle-upon-Tyne, but, preferring railway work, he was apprenticed in 1871 to the London and North Western Railway Co. at Crewe. Railways evidently run in the family for his brother, Sir Guy Calthrop, is one of the best known of railway magnates.

In 1879 he joined the Great Western Railway at Swindon, whence in 1882, he was appointed Assistant Locomotive Superintendent to the Great Indian Peninsula Railway. While in this service he interested himself in the provision of light railways as feeder-lines for trunk railways and received special permission from the Board of the G.I.P.R. to become Chairman of a company formed for this purpose. As the result of a vigorous campaign, the Government of India appointed a committee to consider the whole question.

Resigning from the G.I.P.R. in 1890, Mr. Calthrop surveyed and reported upon a number of projected light railways which have since been constructed in various parts of India, and got a personal concession for the Barsi Light Railway of which he made a financial success which enabled him to demonstrate the advantages of his system of narrow gauge light railways of heavy traffic capacity. He began practising as a Consulting Engineer in England in 1891 and devoted himself largely to light railway work.

In 1906 he became the Managing Director and Chairman of E. R. Calthrop Aerial Patents Ltd. and thenceforward devoted himself to studying the subject of life-saving appliances for aircraft. Though he was by no means the first person to make parachutes in Great Britain, one may certainly claim for him that nobody before his day produced a parachute which was so satisfactory from every point of view as was the Calthrop. The pity is that Mr. Calthrop had to fight so long and so hard before he managed to get it adopted by the technical experts, who, in those days as to-day, delayed aeronautical progress.

The "Guardian Angel" parachute, as the Calthrop parachute was called, was quite the best-made and the neatest parachute of its day and it saved many lives when used with kite balloons during the War 1914-18. It was also used with unflinching success in airship. The late Air Commodore Maitland, who was about the most complete of airship officers, had implicit faith in the Calthrop parachute and used to walk out of an airship with a "Guardian Angel" as unceremoniously as if he had been walking downstairs.

The "Guardian Angel" was also used largely for demonstration purposes from aeroplanes. One can only remember one accident in this connection. In that case a metal hook pulled out and the parachute came away from the machine without being asked to open. So one may safely say that as a parachute the "Guardian Angel" proved itself to be no per cent. efficient.

One who knew him well and worked with him writes:—"A brilliant thinker and a clever writer, using these talents to the full extent, so much so that he probably offended where a brilliant thinker would have been less verbose and consequently more successful from a business point of view. He will however be remembered as a devoted champion of the cause so near his heart, that of always striving to arrive at a day when the law should demand that every person flying should be equipped with a parachute. But he has only lived to see the semblance of his wishes gratified.

To this one would only add that one has always had the greatest admiration for Mr. Calthrop's high abilities and for his persistence in forcing the Air Authorities to recognise his parachute. The chief reason for the lack of success of the "Guardian Angel" was that Mr. Calthrop insisted on sticking to the static-line type of parachute when it was evident that the free type was the only kind which could be of use in a fighting service.

As his friend has said, a less brilliant man might have been more successful. But, like many others of us, Mr. Calthrop was more concerned with saving the lives of aviators than with merely making good business for himself. If he failed to get all the business that he might have got, he did it at any rate prove that parachutes are necessary and reliable. And thereby he made easier the task of those who ultimately reaped the financial harvest which he had sown.

For the good work which "Guardian Angel" parachutes did for the Italian Air Force, Mr. Calthrop had conferred upon him the Italian Order of St. Maurice and St. Lazarus.

Apart from his devotion to parachutes his particular hobby was the breeding of Arab horses. And one of the most entertaining of sights was to see the mutual understanding between him and his horses which convinced one that they spoke the same language. He was also a devotee of painting and photography. His best monument is the fact that to-day parachutes are standard equipment in the Royal Air Force.—C. G. G.

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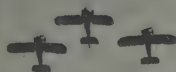
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The Aeroplane, Jan. 5th, 1927.

"Flight" photograph

GLOSTER

THE FLYING CLUBS.

The London Aeroplane Club.

Report for week ending Apr. 3.

Total flying time 68 hrs. 40 mins. Instructors.—Mr. F. G. M. Sparks, assisted when required by Messrs. R. W. Reeve, A. S. White and C. D. Barnard.

Dual.—G. Black, J. Rich, T. Symmons, Miss Spooner, H. G. Riches, G. H. Saxon Mills, L. C. Davey, E. J. B. King, J. McClure, L. Martin, Miss Fletcher, G. M. Randall, Lord Clydesdale, H. O. Eugenheim, F. Clarkson, Lady Bailey, Miss O'Brien, L. W. Gibbins, A. J. Richardson, R. Drysdale Smith, J. J. Hofer, J. A. Simson, A. S. Mulder, A. C. M. Jackaman, E. Rose Richards, H. M. Samuelson, H. S. Greenland, G. C. Bonner, Dr. Cook, Mrs. Cook, A. Lees.

Solo.—Miss O'Brien, N. Jones, A. R. Ogston, G. Terrell, O. J. Tapper, Major K. M. Beaumont, D.S.O., G. H. Craig, J. H. Saffery, G. C. Bonner, Sir John Rhodes, A. Lees, E. D. Moss, R. Sanders Clark, H. Solomon, R. P. Cooper, Capt. H. Spooner, R. Malcolm, A. J. Richardson, G. M. Randall, A. F. Wallace, T. W. Eady, D. H. P. Esler, R. P. Cooper, K. V. Wright, L. Bramson.

Passenger Flights.—H. J. Beckett, L. C. Davey, Miss Mackenzie, G. F. Wilson, Miss Marler, D. R. Lee, G. Lambert, H. J. Greenland, D. A. Wilson, Mrs. Skinner, Miss Judge, Miss Forsyth, B. M. White-side, Miss Clarke, E. T. Symmonds, O. S. Barros, Miss Spooner.

Flying Time for March.—The total flying time for the month of March was 169 hrs. 45 mins., made up as follows:—Dual instruction, 148 flights, 70 hrs. 20 mins. Solo training, 46 flights, 18 hrs. 55 mins. Solo flying, 152 flights, 60 hrs. 10 mins. Passenger flights, 29 flights, 9 hrs. 30 mins. Test flights, 65 flights, 10 hrs. 50 mins. Totals, 440 flights, 169 hrs. 45 mins.

During the month 107 individual members of the Club were in the air.

BOURNEMOUTH EASTER AIR RACES.—The following members have been selected to pilot the Club machines in the various events:—

Flight from Stag Lane to Bournemouth on Thursday, Apr. 14, leaving at 17.30 hrs.: D.H. Moth G-EBNY, O. J. Tapper in charge, passenger, Capt. H. Spooner. D.H. Moth G-EBKT, Major K. M. Beaumont in charge, passenger, G. C. Bonner. Bristol Brownie, G. Terrell.

Christchurch Handicap Stakes.—G-EBKT, Major K. M. Beaumont; G-EBNY, Capt. H. Spooner; Brownie, G. H. Craig. Ensburys Park Stakes.—Brownie, F. G. M. Sparks. Bournemouth Aerial "Oaks".—G-EBKT, Miss O'Brien. Winton Handicap.—G-EBKT, Capt. F. G. M. Sparks. Branksome Cirrus Handicap.—G-EBKT, A. R. Ogston; G-EBNY, G. Terrell. Roscombe Stakes.—G-EBKT, Capt. F. G. M. Sparks. Bournemouth Hotels Association Sweepstake.—G-EBKT, M. L. Bramson; G-EBNY, L. J. C. Mitchell; Brownie, Flg. Off. P. G. Lucas. Bournemouth and District Business Houses Sweepstake.—G-EBKT, G. Terrell; G-EBNY, O. J. Tapper; Brownie, G. H. Craig. Holiday Final Handicap.—G-EBKT, E. D. Moss; G-EBNY, O. J. Tapper; Brownie, M. L. Bramson.

The Lancashire Aero Club.

Report for week ending Apr. 2.

Total flying time 28 hrs. 40 mins., made up as follows:—Dual with Mr. Brown.—Messrs. Musgrave 1 hr. 35 mins., Caldecott 1 hr. 15 mins., Gerrard 45 mins., Terres and Ward 40 mins. each, Serke and Cohen 35 mins. each, Forshaw, Stern, Heys, Mulder and Meades 30 mins. each, Nelson and Abdalla 25 mins. each, Miss Brown 20 mins., Messrs. Anderson, Benson, Dickinson and Hardy 15 mins. each, Ruddy 10 mins.

Dual with Mr. Scholes.—Mr. Ruddy 20 mins. Solo.—Messrs. Birley 5 hrs. 40 mins., Costa 2 hrs. 5 mins., Abdalla 50 mins., Wade 40 mins., Dickinson and Twemlow 35 mins. each, Michelson 20 mins., Benson, Lacayo and Williams 10 mins. each, Nelson and Forshaw 5 mins. each.

Joy-rides:—With Mr. Lacayo.—Messrs. Caldecott 1 hr., Hartley 35 mins. With Mr. Brown.—Miss Armstrong 30 mins., Mr. Smith 10 mins. With Mr. Scholes.—Messrs. Haigh 20 mins., Mathew 10 mins., Mrs. Boyes 10 mins. With Mr. Goodfellow.—Miss Bodenham 30 mins. With Mr. Leeming.—Mr. Westcott 25 mins. With Mr. Costa.—Mr. Abdalla 20 mins. With Mr. Cantrill.—Mr. Mathew 15 mins.

Test Flights:—1 hr. 35 mins. Despite one crash, much rain and persistent high winds the week has been quite a good one. IR was crashed on Sunday evening (for description see below), but the staff, working like beavers (not of the "King" variety) had her in the air again by Wednesday.

Fourteen members were flying solo during the week and of these two, Messrs. Nelson and Forshaw, made successful debuts as soloists, while two more, Messrs. Benson and Abdalla, rejoined the ranks of the soloists with distinction after a prolonged absence from the field of flying. Mr. Birley put in no less than 5 hrs. 40 mins.' solo flying. Other soloists please copy.

One regrets having to report a grave breach of the Club rule which says "The Assistant Secretary shall not be disturbed in his office except on business." Last Sunday Mr. Atherton was sitting in the hut on the edge of the aerodrome quietly making up the returns, when he was pained to observe Mr. Williams entering through the window, preceded by the nose of IR, which he happened to be piloting.

The following conversation is reported to have taken place:—

Mr. Atherton (removing a propeller, six planks and eleven panes of glass from his hair): "Tut-tut, Mr. Williams, I'm afraid I'm very busy just at present. Some other time perhaps."

Mr. Williams (from the cockpit, covered with confusion and debris): "So sorry, Mr. Atherton, my mistake entirely. But I did know you know."

Well, well. Boys will be boys. Three hearty cheers for the B.A.L.G., anyway.

The Newcastle-upon-Tyne Aero Club.

Report for week ending Apr. 3.

The weather during the week was moderate, and no flying was possible on Saturday or Sunday, the Club's only Moth having been taken off service.

Total time, 26 hrs. 55 mins. Dual, 12 hrs. 30 mins. Solo (Training), 3 hrs. 55 mins.

Passenger flights by Mr. Parkinson, 30 mins.

Mr. T. E. M. Wardill was launched on Monday and Mr. J. A. T. Middleton on Friday, each making excellent landings.

The following members flew under instruction with Mr. Parkinson: Miss C. R. Leadhart, Mr. Mathews, Mr. Phillips, Mr. Bell (all advanced dual), Mr. Heaton, Mr. Wardill, Mr. Jewett, Mrs. Heslop, Mr. Stawart, Mr. Rasmussen and Mr. Middleton.

Solo: Messrs. Mathews, Bainbridge, Stawart, Wardill, Middleton, Bell.

Members of the "Blue Train" Company visited the aerodrome on Friday and among those who had joy-rides were Mr. Billy Howse and Mrs. Howse, Miss Stack and Miss Dalziel.

The Midland Aero Club.

Report for week ending Apr. 2.

Total flying time 6 hrs. 33 mins. Dual instruction with Mr. McDonough:—A. Ellison, E. P. Lane, C. Fellowes, R. L. Jackson, S. H. Smith, T. Ellison, J. C. Rowlands. Solo:—G. V. Perry, H. J. Willis, E. J. Brighton. Passenger with Mr. Brighton:—E. F. Lane. High winds again restricted flying.

The Hampshire Aeroplane Club.

Report for week ending Apr. 1.

Again flying time reached only 4 hrs. 5 mins. Rain and gales made flying out of the question on five days.

Instruction flying:—2 hrs. 40 mins. Solo flying:—40 mins. Test flights:—25 mins. Joy-riding:—20 mins.

Instruction:—Messrs. Everett 30 mins., Courtney 30 mins., Mellor 20 mins., Stanford 20 mins., Southcliffe 20 mins., Vanden Burgh 15 mins., Stokes 10 mins., Shepherd 10 mins., and Ash 5 mins.

The only soloist was Don Juan de la Cierva. (We must apologise for having previously noted him as Señor de la Cierva; our knowledge of Spanish forms of address was at fault.)

On Wednesday, Mar. 30, the Annual General Meeting was held in the Southampton Chamber of Commerce, and after the report for eight months' career of the Club had been read by the Chairman, Mr. O. E. Simmonds, the following members were elected to fill vacancies on the committee: Mr. R. J. Parrott, Mr. Macrae, and Mr. Hair.

In the course of his report, Mr. Simmonds stated that the Club now has a total membership of 220, with 84 pilot members.

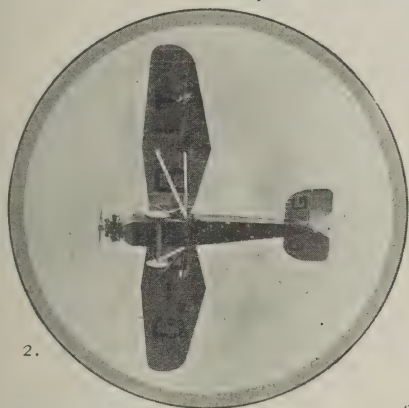
The club-house equipment fund has now reached the sum of over £700, and the Pageant prize fund over £300 in cash and several fine trophies. These trophies have been presented by the President, Lord Louis Mountbatten, Sir Charles Wakefield, Mr. Morris of Cowley, and Flight.

A SHELL MOTH.

Shell-Mex Ltd. has bought a De Havilland Moth (Cirrus II), with which Mr. H. Shaw (better known as Jerry) will visit aerodromes on business for his company, in lieu of using road transport. On Wednesday, March 30, there was a little ceremony at Stag Lane aerodrome, when Mrs. George Wilson, wife of the Assistant General Manager of the Shell Co., christened the Moth "Arom" (presumably the next machine will be "Atic"), by pouring two gallons of the best Shell spirit into the tank and saying "I name this aeroplane the 'Arom,' and I wish good luck to the 'Arom,' to her pilot, and to her passengers."



IN THE PROPER SPIRIT.—The baptising of the Shell Company's De Havilland Moth (Cirrus Mark II engine) at Stag Lane on Mar. 30. Mrs. Wilson, wife of the Assistant General Manager of Shell-Mex Ltd., is seen pouring the first draught of life-giving spirit into the tank, while Mr. "Jerry" Shaw, the firm's Director of Civil Aviation, looks on. Mr. Wilson is on the right facing the camera.



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2. The Westland Widgeon.

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For eleven years we have been designing and building aeroplanes, and to-day the reputation of Westland Aircraft for safety, speed and comfort is world-wide.

Our designs comprise all types from private single seaters to large twin engined bombing machines.

In these days road travel is anything but pleasant. By owning a light passenger machine you can recapture the joys of travel. We intend to publish shortly particulars of Widgeon III, a light passenger Monoplane which will be within reach of the man of moderate means. The machine folds, and will go comfortably into an ordinary garage. Widgeon II, the parent machine was the fastest machine in the Grosvenor Cup Race this year, with an average speed of 105.5 m.p.h.

We are supplying numbers of machines to the Royal Air Force both at home and abroad. We have our own 4 ft. wind channel for testing models, and our extensive aerodrome is situated by the side of the works for testing the finished machines. Enquiries are solicited for aircraft for all purposes.

WESTLAND AIRCRAFT FOR BUSINESS OR PLEASURE.

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YEOVIL

ENGLAND.

Mrs. Wilson then emplaned, and Mr. Shaw took her for a flight in a gale of wind and a hailstorm, and made a perfect landing, even though the ground was like a marsh. Mr. Shaw had obviously lost none of his outstanding ability as a pilot.

After this, little Miss Nixon, daughter of the secretary of the De Havilland Co., presented a bouquet to Mrs. Wilson.

Mr. Wilson said that they had bought the machine as a useful vehicle of transport and not as an advertisement. His company believed that the Moth would enable Mr. Shaw to get about among the various aircraft firms more quickly than by car or rail.

One congratulates the Shell Company on their foresight. They are in the happy position of having as their aviation representative one who is at the very top of the first class of pilots.

To close the proceedings Mr. F. N. St. Barbe presented to Mrs. Wilson a barometer, mounted in an airscrew boss, and an altimeter, from the De Havilland Company (one also one suspects from A.D.C. Aircraft) as a memento of the occasion.

G. D.

A PERSONAL APPEARANCE.

The next House Dinner of the Institution of Aeronautical Engineers will happen on Friday of this week, April 8, at the Engineers' Club, at 7.30 p.m. Tickets are 5s. each. This time Mr. Frank Courtney will begin a talk on the Autogiro.

To use modern theatrical language, Mr. Frank Courtney will make a personal appearance. Unfortunately last time he was prevented by illness from keeping his promise.

A TRANS-ATLANTIC ZEPPELIN.

According to French reports the Zeppelin Works hope to complete L.Z.127 about September of this year.

L.Z.127 is said to be a ship of 105,000 cubic metres (3,800,000 cub. ft.) capacity, 235 metres (770 ft.) long and 30.5 metres (100 ft.) diameter, fitted with six Maybach engines each of 400 h.p. The cost of the ship is said to be 2,600,000 marks (£130,000).

L.Z.127 is intended for the long-discussed Spanish-South-American service, for which both the Spanish and Argentine Governments have agreed to contribute a subvention in respect of mails carried. This ship is to be fitted both for passenger and mail work, and, subject to her passing satisfactory tests in service, will be followed by other ships probably even larger in size.

THE ROYAL AERO CLUB.

The Annual General Meeting of the Members of the Royal Aero Club was held at 3, Clifford Street on March 30. Lieut.-Col. Sir Francis K. McClean, A.F.C., took the Chair in the absence of Lord Thomson, Chairman of the Club.

The Chairman in the course of his remarks stated that the Club required more members. The reduced subscription of £3 3s. to the Officers in the Royal Air Force, the Royal Air Force Reserve and Auxiliary Air Force was a concession which he hoped would result in a large increase during the present year.

During the past year the Club had collected and distributed Prizes for Competitions, Races, etc., amounting to nearly £7,000. In addition to the Races organised by the Club, provincial Race Meetings had been held by the Lancashire, Newcastle and Yorkshire Aero Clubs, which had proved of immense interest in their respective localities.

The advent of the Light Aeroplane Clubs had resulted in a large increase in the number of licences issued during the year, and there were very satisfactory additions to the number of private owners.

He hoped that members would come forward with subscriptions to the Racing Fund and so enable the Club to give financial support in the way of Prizes, to the Light Aeroplane Clubs, who were organising Race Meetings in various provincial centres this year.

COMMITTEE.—The following members were elected to the nine vacancies on the Committee: Lieut.-Col. M. O. Darby, O.B.E.; Lieut.-Col. John D. Dunville, C.B.E.; Mr. Griffith Brewer; Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S.; Wing-Cdr. T. O'B. Hubbard, M.C., A.F.C.; Lieut.-Col. Sir Francis K. McClean, A.F.C.; Mr. F. Handley Page, C.B.E.; Mr. T. O. M. Sopwith, C.B.E.; Capt. C. B. Wilson, M.C.

The following were unanimously elected:—President: Brig.-Gen. The Duke of Atholl, K.T., G.C.V.O., D.S.O. Vice-President: The Duke of Sutherland.

THE COUNCIL OF THE R.Ae.S.

At the Annual General Meeting of the Royal Aeronautical Society, held on Tuesday, Mar. 29, 1927, the following members were elected to serve on the Council for the two years ending March, 1929:—Wing Cdr. T. R. Cave-Browne-Cave, Sir Mackenzie Chalmers, Mr. A. E. L. Chorlton, Mr. C. R. Fairey, Mr. J. E. Hodgson, Major R. H. Mayo, Lt.-Col. Mervyn O'Gorman, Mr. T. O. M. Sopwith, Air Vice-Marshal Sir Vyvyan Vyvyan, and Dr. H. C. Watts.

THE CHIEF OF LITHUANIAN AVIATION.

A new Chief of Lithuanian Aviation has been appointed, Lieut.-Colonel Pundzevilins, hitherto Commander of the 5th Regiment. He has already taken over from Lieut.-General Ktaucevicius, the former Chief, who has resigned.

World's Speed Record

(203.841 miles per hour)

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MAGNETOS

The World's speed record was secured by Major Segrave with the 1,000 H.P. Sunbeam Special on March 29th, at Daytona Beach, Florida, when he attained the colossal speed of 203.841 m.p.h. His machine is equipped with B.T.H. magnetos.

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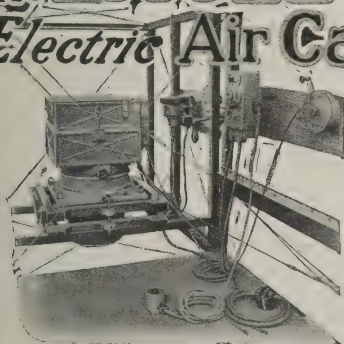
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EXPERIENCES IN THE HERCULES.

The opinions of experienced people are always interesting, therefore considerable interest attaches to the opinions of Mr. Herman Volk, of Brighton, who flew as a passenger in the last de Havilland Hercules to go out to Egypt, the more so as he returned by boat and train and also flew from Paris to Holland by K.L.M.

In twenty-one days Mr. Volk travelled over 6,000 miles, nearly 4,000 of which were covered by air. He visited two Continents, nine countries and also many of the show places of Southern Europe and the near East,—and spent a full week in Egypt.

Four and a-half days more of his three weeks were spent on a mail-boat coming from Egypt. He remarks how he hated its tortoise-like pace, and that, in spite of "Mrs. Neon," it took 24 hours to cover a distance which an aeroplane could easily do in 4 hours or less.

He travelled to Paris from the Mediterranean on the much-advertised Blue Train, which, he says, is very expensive and is as noisy as the Hercules and sometimes more so. Also he found it not as stable nor as free from vibration as the aeroplane.

From Paris he flew to Rotterdam in one K.L.M. machine, thence to Amsterdam in another, and returned to London also in a K.L.M. Fokker, actually lunching in the Royal Aero Club within three hours of leaving Holland.

He adds, "I take off my hat to the K.L.M. for its general organisation, its machines, and its unfailing attention and courtesy to its passengers."

His impressions of the Hercules are stated concisely in the following notes:—

- (1) *General Comfort*.—Excellent.
- (2) *Noise*.—Personally after travelling back to Paris from Marseilles on the celebrated "Blue Train" I have come to the conclusion that there was little if anything to choose between the two methods of travel on this score. At times the impression of noise was greater on the train than when in the air.
- (3) *Stability*.—Except during the one or two bumpy stretches we experienced, the machine was much steadier than either the train or boat (Rotterdam 1,100 tons).
- (4) *Vibration*.—This was nearly as much on the boat and quite as much on the train.
- (5) *Heating*.—This wanted a little finer means of regulation, the adjustment provided was too coarse.
- (6) *Seats*.—Personally I found them more comfortable than I expected. The head-rests being fixed, obviously people with varying body dimensions, plus or minus, would not all fit in as well. Further I noticed that when passengers were resting they always leaned

their heads against the projecting arms of the head-rests instead of in the hollow centre, which seemed set too far back.

On flying back from Paris via Amsterdam on the K.L.M. (Fokker machines) I must confess that I found the cane seats (without head-rests) much more comfortable than any others I have tried. On the other hand on a later type machine on the same service, chairs covered with Rexine (or similar) were not so nice. One slipped about too much.

(7) *Sanitation*.—This was rather crude, some sort of automatic non-return trap is required.

(8) *Air Sickness*.—As you will no doubt know, nearly all of us suffered a little from this on the first day. Personally I found much less unpleasant than sea sickness, and the feeling of nausea left one as soon as the "bumps" did, and/or directly one was off of the machine and "on the deck." So far as I myself was concerned the cause appeared to be purely physical, the direct result of a series of sudden and frequent "drops," which term seems to fit the case better than "bumps."

(9) *Gangway*.—Better and easier means of getting in and out of the machine are needed, as aerodrome steps are not always handy.

(10) *Luggage*.—For a machine built, as no doubt there will be in time, for "Holiday Tours by Air" standardised suit cases should be provided to fit into special pigeon-hole compartments similar to those now used on certain cars and by "Motorways Ltd."

(11) *Tables*.—Hinged flaps fitted to the backs of the chairs to form small writing tables would be a great comfort, especially if an elastic or other flex strap were stretched across it to act as a "fiddle," in bumpy weather. It is a bother spending half one's time picking up papers, gloves, etc., etc., for oneself and/or other people.

(12) *Route Indicator*.—This is a very important point and would add to one's interest considerably; this would have to be worked by the pilot (poor pilot!), or his assistant and need only indicate the position of the machine over certain towns or land-marks, often very difficult to follow on an ordinary map, with no knowledge of the speed or the actual course.

(13) *Smell of Oil*.—This was very unpleasant at times, especially in cold weather, when the oil did not vaporise and thus disperse.

(14) *Windows*.—Unbreakable glass would be a great improvement, as the celluloid ones fitted soon discolour.

(15) *Paper Bags* for air-sickness are an improvement over spittoons, which are too obvious.

Additional Notes.—The absolute sense of security and the great comfort generally surpassed my wildest ideas on these points. The freedom from tiredness after the day's flying, up to 6 or 7 hours, was most remarkable, and was noticed by all the passengers without exception. The extraordinary freshness and cleanness (apart from mud on one's lower extremities picked up on wet aerodromes) with which every one decanted from the machine at the end of each flight, was also a feature.

Finally, Hinchliffe's piloting throughout the flight and his landings were as usual priceless. One hardly knew when we "hit the deck." Of the virtues or otherwise of the machine and the engines I have no need to tell, except that its virtues were many.

The

"CYCLONE"

Beardmore (Six Cylinder Direct Drive) Aero Engine.

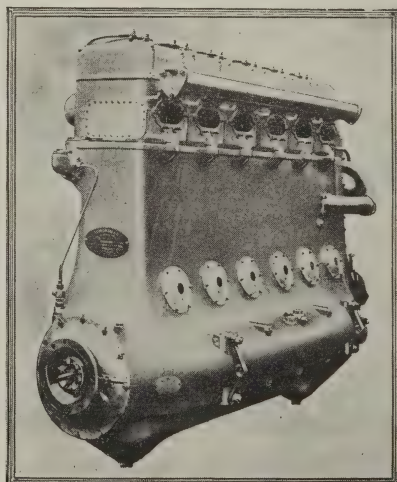
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The Beardmore "Cyclone" Aero Engine marks a distinct forward step in design. The combination of direct drive and low head resistance and slow moving propeller makes for great aerodynamic efficiency.

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AERONAUTICAL RESEARCH COMMITTEE,
The Stability and Control Panel.
Report and Memoranda No. 1,000, p.13.

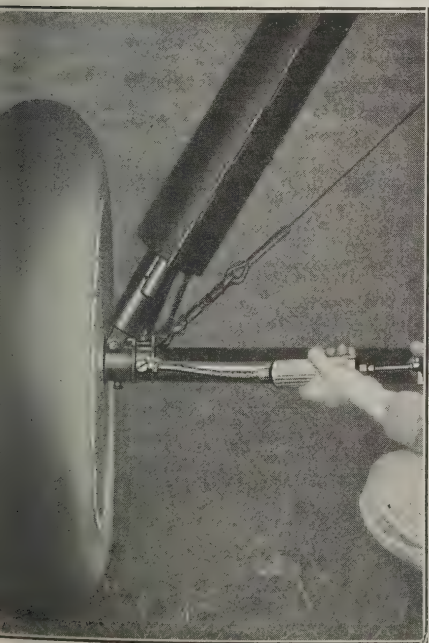
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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 11; Tuesday, 12; Wednesday, 11; Thursday, 14; Friday, 15; Saturday, 16; Sunday, 2.

IMPERIAL AIRWAYS LTD.:

Paris—London; London—Brussels—Cologne: Machines 26, passengers 191, freight 13 tons.

AIR UNION:

Paris—London: Machines 20, passengers 53, freight 11 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 20, passengers 34, freight 4 tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 12, passengers 42.

PRIVATE:

Machines 1, passengers 2.

Total number of trips by British Machines, 27, carrying 193 passengers. Foreign Machines, 52, carrying 129 passengers.

Comparative Figures:

Week ending Apr. 13:

Machines, 79; Passengers, 322; Crews, 125; Total personnel, 447.

Corresponding week, 1926 (Easter week):

Machines, 98; Passengers, 516; Crews, 125; Total personnel, 641.

Corresponding week, 1925:

Machines, 92; Passengers, 344; Crews, 116; Total personnel, 460.

Corresponding week, 1924:

Machines, 44; Passengers, 179; Crews, 76; Total personnel, 255.

Corresponding week, 1923:

Machines, 93; Passengers, 417; Crews, 156; Total personnel, 573.

Corresponding week, 1922:

Machines, 60; Passengers, 137; Crews, 100; Total personnel, 237.

Corresponding week, 1921:

Machines, 58; Passengers, 120; Crews, 78; Total personnel, 288.

Corresponding week, 1920:

Machines, 36; Passengers, 45; Crews, 40; Total personnel, 85.

Croydon Notes.

Imperial Airways Ltd. are to undertake active propaganda by setting aside an air liner for joy-ride work. A suggestion to similar effect was made in THE AEROPLANE in 1920, and for a short time the Instone Air Line tried it out with great success. On one famous occasion the old Vimy carried 500 passengers on a Saturday and Sunday at 5s. per person.

The present idea is that there will be extended joy-rides over London at two guineas per person, including transport to and from London. One fears that there will be a very limited supply of applicants for these flights. A better way, one thinks, of operating propaganda flights, and one which in a small way Imperial Airways Ltd. are adopting, is to send an air liner round the country. This will visit the big towns, so that people who have already been started on the path of air-mindedness by the visits of the established joy-ride firms may have an opportunity of seeing and flying in a really big passenger machine.

To begin with, Imperial Airways will send a machine to the organised flying meetings such as Bournemouth and Hamble. One suggests that they might extend this scheme and send a machine on a Saturday or a Sunday to the aerodromes of the various flying clubs and let all the members of these have flights. [A good idea. Though I.A. would in a way be preaching to the converted, the said converted would certainly bring the unconverted with them.—C. G. G.]

One has no hesitation in referring to the Boat Race in Croydon Notes. Croydon, with most other aerodromes, recently has been quite wet enough for the Boat Race to be held on its waters.

The salient of the Thames during the actual race was very much like the Somme salient during the War 1914-18 on a fine morning. The air was full of aircraft all engaged on various jobs. The first arrivals were an R.A.F. Avro and a de Havilland school G.J. For their own amusement they had a scrap, chasing one another all over the sky. Shortly afterwards they were joined by an R.A.F. Horsley which cruised round at something like the regulation height.

The next arrival was a D.H.50 of Imperial Airways, followed by another D.H. school G.J. Then came a drove of Moths, five to begin with and then two more, after which a couple more R.A.F. Avros appeared. The last arrivals were a couple of R.A.F. D.H.9as.

All the R.A.F. machines kept at a respectable height, but some of the others, particularly a London Club Moth, were in one's own opinion much too low, and it certainly caused adverse comment.

One watched the race on a misty day from 3,000 ft. in 1922 with the late Major Foot, and from that height the race can be seen and followed easily and the colour of the oars can be seen distinctly. If people insist on coming down too low, flying over the race will be prohibited altogether. So why not live and let live?

No doubt everyone who was over the race on that day will curse one for saying this. One names no names and makes no insinuations,—but there was once an examination going on in a hall. Suddenly a voice from the gallery said, "If the person who is copying from his next door neighbour will tear up his paper and leave the hall no further action will be taken against him." There was a pause, after which 50 per cent. of the examinees rose, tore up their papers, and walked out of the room.—G. D.

NEW WIRELESS EQUIPMENT AT CROYDON.

Among the many changes which are to be made at the London Terminal Aerodrome, one of the most important will be the erection of an entirely new wireless station.

The present station has been in service for seven years, and has probably done more useful work in aiding air traffic than any other in the World.

The new station, which is to be erected by Marconi's Wireless Telegraph Co. Ltd., will embody the results of practical experience with the existing equipment, and of much research work done by the Marconi Research Department. It will be some miles from the aerodrome, so that there will be no obstruction by aërials and their masts in the immediate vicinity, and it will be operated from the aerodrome itself by the "remote control" system.

There will be four transmitters, each of three kilowatts capacity, which can transmit either by telephony or by telegraphy on wave lengths ranging from 800 to 2,000 metres. In addition there will be a new direction-finding receiver with remarkable selective characteristics, which is so arranged that two or more circuits can be operated from the same aërials on different wave lengths.

It is expected that the new station will be completed and ready to take over the work of the present station before the end of this year.

MR. HINKLER'S FLIGHT.

Owing to the unsettled weather of the past week, Mr. Bert Hinkler has been unable to make his attempt to set up a non-stop record for Light Aeroplanes on the Avro Avian. He wishes to make this flight under normal conditions so as to get reliable figures of petrol consumption. Though the flight was easily possible on many days last week, as a consumption test it would have been of little use.

MORE JOY-RIDING.

A new joy-ride firm will be coming into existence in the course of the next few days. Mr. E. W. Jordan, who for some time has been flying for the Cornwall Aviation Co., and himself carried 8,000 passengers last year, has registered Western Aviation Ltd., as recorded officially in THE AEROPLANE last week, and is beginning operations at Cheltenham, where Western Aviation Ltd. is registered, on Apr. 12.

He is using a standard Avro with a Clerget engine. With his experience he should do good business and one wishes him luck in his efforts to increase the air-mindedness of the country.

AN AIR MAIL DELIVERY IN BURMA.

On Apr. 1, Mr. Neville Vincent, D.F.C., who is engaged on aerial survey work with the Air Survey Co. in the East, carried a load of mail from Rangoon to Tavoy and Mergui, a distance of 245 miles, in 3½ hours.

Normal communication between these places is by a weekly steamer, which takes at least 24 hours.

MUNICIPAL LANDING GROUNDS IN CANADA.

THE AEROPLANE has already reported that the Department of National Defence has circulated all the bigger municipal authorities throughout Canada, asking for their co-operation in the establishment of municipal aerodromes and landing grounds in preparation for the ultimate establishment of an air mail service across Canada.

This appeal has met with considerable support, and about fifteen cities, including Vancouver, B.C., Edmonton and Calgary, Alta, Haileybury, Ont., and Winnipeg, Fredrickton and Virden, Man., have already set aside land suitable for the purpose.

In Vancouver a municipal seaplane station adjoining the R.C.A.F. station at Jericho Beach, and a landing ground on Lulu Island, have been recommended for consideration by the municipal authorities.

Winnipeg plans landing grounds on the basis of the touring camps that are a familiar feature of many cities in the States, to be constructed at public expense for the use of anyone who wants to fly.

A National Aeronautical Association is now being formed in Canada, with headquarters in Winnipeg, which will devote considerable attention to the question of interesting public opinion in commercial aviation.

FROM HOLLAND TO THE EAST INDIES.

The General Secretary of the Koninklijke Nederlandsche Vereniging voor Luchtvaart (The Royal Aero-Club of the

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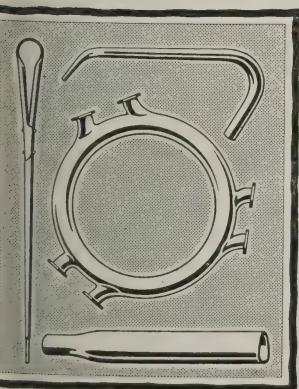
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Netherlands) writes to state that there is an error in the *Times'* report, quoted in THE AEROPLANE last week, concerning the Meeting convened to discuss the Dutch Route to the East Indies. The Club states that this Meeting was in fact convened by the General Netherlands Association, The Holland-India Committee and The Royal Aero-Club of the Netherlands. The K.L.M. air line was naturally represented at the Meeting, but was not one of the original conveners.

One is glad to make this correction, because it will now be clear that the Meeting was convened by associations concerned in a general way with the welfare of the Netherlands, and not by a firm which might expect to profit directly by such an air line. Which is to say that though the Meeting was in the interests of the K.L.M. it was not convened by the K.L.M. in its own interests.

The Royal Aero-Club of the Netherlands is to be congratulated on its foresight. One wishes that the Royal Aero-Club of the United Kingdom would concern itself more in matters of such importance.

MORTGAGES AND CHARGES.

CIRRUS AERO-ENGINES LTD.—Particulars filed of £5,000 prior lien debentures authorised Mar. 25, 1927, charged on the Co.'s property, present and future, including uncalled capital (ranking in priority to £8,600 debentures already registered), the whole amount being now issued.

PERSONAL NOTICES.

DEATH.

NESBITT.—On Mar. 31, at Johannesburg, very suddenly, Capt. Thomas Hunter Nesbitt, M.B.E., late R.A.F., of 34A, Trebovir Road, S.W.5, dearly beloved husband of Mignon Nesbitt, and only surviving son of Thomas Hunter Nesbitt, of 27, Redcliffe Square, S.W., in his 37th year.

FORTHCOMING MARRIAGE.

MACLEAN-CAMERON.—An engagement is announced between Sq. Ldr. L. J. MacLean, R.A.F., son of the late Mr. Loudoun Francis MacLean and of Mrs. MacLean, of Longfield Road, Ealing, and Miss Nancy Cameron, daughter of the late Mr. Alexander Patrick Cameron and of Mrs. Cameron, of Ardsheal, Kentallen, Argyll.

BIRTHS.

CARSON.—On Mar. 19, at Malta, to Violet Carson (née Ebsworth), wife of Flt. Lt. J. H. B. Carson, R.A.F.—a son.

DELAMAIN.—On Mar. 29, to Mary (née Vyvyan), wife of E. C. Delamain, R.A.F., of "The Cottage," Hough, Lincolnshire—a son.

BOURNEMOUTH EASTER AIR RACES.

(Under the Competition Rules of the Royal Aero Club.)

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EASTER SATURDAY,

EASTER MONDAY.

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INCORPORATING AERONAUTICAL ENGINEERING

Edited by
C. G. Grey

Vol. XXXII. No. 15.

SIXPENCE WEEKLY.

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(Wordsworth.)



AUSTRALIA'S FIRST AIR LINERS:—The two Bristol Tourers (Siddeley Puma engines), part of the original equipment of West Australian Airways, which were recently flown from Perth to Sidney to be transferred to a service in New Guinea, now Australian Mandated Territory. Their career materialises the quotation which appears at the top of the picture, and the quotation is itself the essential spirit of the national motto "Advance Australia."

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APRIL 13,
1927.

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ON AUSTRALIAN AVIATION.

Australia is the alpha and omega of the British Empire, alphabetically and geographically. It is the beginning and end of the great Imperial Air Route, whether that be considered as a strategic air line or merely as a commercial airway. Also Australia is the military outpost of the Empire, in conjunction with Singapore, it protects all our possessions bordering on the Indian Ocean (Burma, the Malay States, India, Ceylon, Iraq, and British East and South Africa) against oriental aggression by sea. For that reason it is right and proper that the first Special Issue of THE AEROPLANE, to be devoted to any British Overseas Dominion should deal with Australian Aviation.

Moreover, Australia has the distinction of having been the first British Dominion to take flying seriously and to form a flying Service of its own. The Royal Australian Air Force is in fact very little junior to the Royal Air Force, taking the two Forces as being the direct descendants of the little flying Services which existed before the outbreak of War in 1914. And the Australian Flying Corps was the only Dominion air Service to retain its identity throughout the war 1914-18.

Furthermore, a number of Australians were among the pioneers of aviation in England. And one Australian is among the great aeronautical pioneers of the World.

Therefore it is quite time that somebody set forth inside the cover something like a collected history of Australian aviation. This issue of THE AEROPLANE endeavours to give such a history for the first time.

It is well that those Australians who are just beginning to take an interest in flying should have such a history put before them. And it is at least equally important that the Royal Air Force and all other aeronautical people in this country should know their Australian history.

ACKNOWLEDGMENTS.

In presenting this history to the readers of THE AEROPLANE one wishes to acknowledge the debt which one owes to those who have helped in producing it.

First of all one thanks Flight Lieut. J. R. Bell, R.A.A.F., the Liaison Officer between the Royal Australian Air Force and the Royal Air Force, who has placed at the disposal of THE AEROPLANE an immense amount of information and many photographs of peculiar interest.

One also wishes to give recognition to the value of Australia's aeronautical newspaper, *Aircraft*, from which for many years the bulk of the Australian news which has been published in THE AEROPLANE has been collected. And one takes this opportunity of congratulating Mr. E. J. Hart, its proprietor and editor, on the excellent work which he has done for Australian Aviation. One freely acknowledges him as being one of the two most caustic, not to say poisonous, writers on aeronautical subjects in the English language.

Also one wishes to thank the Authorities at Australia House, and particularly Mr. R. Maxwell, for presenting to THE AEROPLANE sections of the official film of the Royal Australian Air Force, from which certain of the illustrations which appear herewith have been taken. One is the more grateful because, in getting those pictures, one discommoded considerably the normal operation of the cinematograph department, even to the extent of keeping waiting sundry Members of Parliament who were to receive therefrom education in Australian Aviation.

Finally one wishes to acknowledge the debt which one owes to Mr. Leonard Bridgman for having produced the series of articles on the Royal Australian Air Force, the Australian Aircraft Industry, and Australian Civil Aviation, together with all the statistics and figures involved, which appear



THE IMPERIAL WAY.—The Governor-General of Australia, Lord Stonehaven, and Lady Stonehaven, taken at Longreach, the Headquarters of The Queensland and Northern Territories Air Services, before leaving for Newcastle Waters, in "Iris," the first D.H.50 built in Australia. The Quantas Route is a section of the Great Imperial Airway to the Capital of Australia.

after this article. For weeks he has devoted himself to this task in addition to his regular work on THE AEROPLANE. His industry has been remarkable and his ability in selecting facts which are essential, or of peculiar interest, from the mass of material from which he has had to extract them is best judged by his achievement.

THE BEGINNINGS OF AUSTRALIAN AVIATION.

The aeronautical history of Australia begins with the late Lawrence Hargrave of Sydney, who died in 1915, who, according to that valuable *History of Aeronautics* compiled by Mr. J. E. Hodgson, invented about 1892 the so-called box-kite or cellular kite for experimental work on sustaining surfaces or planes. These followed Hargrave's earlier experiments with model flying machines. Mr. Hodgson says:—

Incidentally it may be said that the box-kite is the type now in common use as a toy—the purpose it has most consistently and successfully served throughout its history.

Through these experiments Mr. Hargrave obtained information about aerofoils which was of real value. But so much contemporary experimenting was going on in Europe that none of his work was actually used by our constructors of aircraft, although the box-kite type of flying machine was actually one of the most successful, for the first aeroplane to fly in Europe was the Santos Dumont box-kite, and the early Voisin box-kites held numerous records in the earliest days of flying.

As an historical fact, the first aeroplane which ever flew in Australia was a Voisin box-kite which was taken out there by the late Harry Houdini, the music-hall artist who was known all over the World as "The Handcuff King." Mr. Houdini had learned to fly at the Voisin School at Mourmelon and took a Voisin box-kite to Australia early in 1910. He made his first flights somewhere about the middle of March, 1910.

A little earlier than that a Mr. Colin Defries took a Wright biplane to Australia and attempted to fly at the Victoria Park Race Course, Sydney, on Dec. 9, 1909. The machine did apparently get off the ground, and is said to have covered a few hundreds of yards in a straight line. It was also reported that on the following day Mr. C. S. Maginnis, an Australian mining engineer, made a short flight as a passenger with Mr. Defries. The machine was crashed soon afterwards.

Therefore, although Mr. Defries might justly claim to have been the first person to leave the ground in an aeroplane in Australia, and Mr. Maginnis might claim to be the first air passenger in Australia, Mr. Houdini certainly was the first person to make a properly controlled flight.

During 1910 several aeroplanes were sent to Australia, including a Wright and two Bleriot. Also one or two attempts were made to build aeroplanes in Australia, but without success.

Actually the next person to fly in Australia was Mr. J. R. Duigan, of Mia Mia, Victoria, who early in 1910 built a little biplane of his own, designed more or less on Curtiss lines and driven by a four-cylinder vertical air-cooled engine built

in Melbourne by Mr. J. E. Tilly. The machine flew, but not for any great distance.

In November, 1910, the British and Colonial Aeroplane Co. Ltd., now known as the Bristol Aeroplane Co. Ltd., and the driving power of their great founder, Sir George White, sent missions to Australia, New Zealand and India. The Australia and New Zealand mission was in charge of Mr. Sydney E. Smith, Sir George's nephew, who eventually distinguished service in the War, 1914-18, in the course of which he became a Lieut.-Colonel, R.A.F. He is now in charge of the Bristol Tramway Co.'s Production Department.

With him went the late J. J. Hammond, a brilliant, reckless New Zealander, who was actually the first trained at the Bristol School on Salisbury Plain, the school being then run by French pilots. His certificate, No. 32 of the list of the Royal Aero Club, granted on Nov. 23, 1910, was the first taken by an Australasian. He was killed in an accident in America after the War.

The second pilot was Mr. L. McDonald, who was drowned in the Thames just before the War. These Bristol machines did quite a lot of flying. So actually the first person to cover any considerable distances in an aeroplane in Australia though not actually an Australian was at any rate Australasian.

One of these old Bristol machines at any rate remained in Australia and was flown by a Mr. Hart, who was probably the first native-born Australian to fly considerably in Australia. He eventually had a bad crash which prevented him from ever flying again, and one believes that he is now a prosperous dentist. He is no relation to Mr. E. J. Hart, *Aircraft*.

THE COMPLETE AVIATORS.

The first Australian to become a complete aviator by possessing an aviator's certificate granted by the Royal Aero Club was Mr. H. R. Busted, whose certificate, No. 94, was granted on June 13, 1911. He learned to fly on a Bristol box-kite on Salisbury Plain and proved so good a pilot that like Mr. Hammond, he was retained by the Bristol Company as an instructor. In that capacity he trained quite a number of Naval and Military officers who are now among the high authorities of the R.A.F. He himself is now Wing Commander, R.A.F., after having done very distinguished service during the War.

The next was Capt. W. Oswald Watt, the first Australian officer to learn to fly. His certificate, No. 112, was granted on August 1, 1911. Oswald Watt did great work during the War and rose to the highest rank reached by any Australian Air flier before the Armistice, when, as a Lieut.-Colonel, he commanded a whole Wing of the Australian Flying Corps.

Before joining the R.F.C. at the beginning of the War, Oswald Watt, fearing that England might miss the services of a man of his calibre, served with the French Aviation Service, and in his citation when he was awarded the Legion of Honour for great gallantry, General Pau said "He is a man without either pride or fear."

The next Australian who qualified was Mr. Eric Harrison, likewise trained on a Bristol on Salisbury Plain, whose



(Australian Official Film.)

AUSTRALIA'S DEFENCE.—One of the original Fairey IIIDs (Rolls-Royce engines) bought by the R.A.A.F. for Coast Defence work.

te, No. 131, was granted on Sept. 12, 1911. Mr. Harri-
like Mr. Busted, became a Bristol instructor.
the War he helped to capture New Guinea, and there-
was appointed to technical work. For some five years,
a few months ago, he was in England doing duty as
an officer.

xt in the list was Mr. John R. Duigan, No. 211, dated
30, 1912, his machine being an Avro. He had come
Mia Mia specially to learn how to fly, after crashing his
machine.

was not until Sept. 17, 1912, that Mr. Harry George
ker, perhaps the most famous of Australian aviators,
his certificate. If one's memory is not at fault, Messrs.
ed, Hawker and Kauper (afterwards notable as inventor
the Kauper machine-gun gear) came over from Australia
her intending to get into aviation, and one believes
Mr. Harrison came on later.

yow, Messrs. Busted and Harrison qualified to become
ors, while Messrs. Hawker and Kauper joined the Sop-
Company, which was then just starting, and worked as
eers quite a long time before Mr. Hawker was given
opportunity of learning to fly by Mr. Sopwith, as a
rd for his intense keenness as a mechanic.

er that quite a number of Australians learned to fly,
of the most notable of them in England being the late
J. Stutt, who was granted his certificate, No. 742, on
25, 1914. He became one of the finest instructors and
pilots in England, and he was eventually drowned some-
ewhere unknown off the South coast of Australia while flying
arch of a ship which was missing.

brief account of the work of Australian aviators during
War is given by Mr. Bridgman in his article on the
1 Australian Air Force, though unfortunately space only
s a mere reference to it—for the magnificent work done
Australian aviators during the War would fill many
es of history.

POST-WAR ACTIVITIES.

er the War, and before the beginning of regular Civil
g in Australia, two very remarkable flights were made
England to Australia by Australian aviators.

e Australian Government offered a prize of £10,000 for
first pilot to fly to Australia from England. The prize
won by Capt. Ross Smith, M.C., D.F.C., A.F.C. With
went his brother, Lieut. Keith Smith, and Sergeants
ett and Shiers.

ey left England on Nov. 12, 1919, on a Vickers Vimy
Rolls-Royce Eagle engines and reached Port Darwin
e. 10. Their time is still unequalled. For this magni-
t performance the brothers Smith were made Knights
e Order of the British Empire. Sir Ross Smith and
passenger, Sergeant Bennett, were afterwards killed in
and in an accident to an amphibian flying-boat which
were testing.

e other great flight is one which has never been recog-
l according to its merits. On Jan. 8, 1920, after the
oo prize had been won and there was no certain reward
d, Lieuts. Parer and MacIntosh left England to fly to
ralia. Their machine was an old D.H.9 with a Siddeley
a engine which they had somehow acquired from Dis-
ls stock. They had no organisation, and no financial

backing from manufacturers of aircraft and engines, or from
prominent advertisers of household commodities, as is now
the fashion. And neither of them had been over the route
before.

They had all kinds of adventures. They crashed their
machine badly on several occasions and rebuilt it on the spot
with whatever material was available. But by sheer pluck
and perseverance they worried through and arrived in
Australia on Aug. 2. They were awarded the Air Force
Cross for their gallantry, and well deserved it.

Mr. MacIntosh was afterwards killed by walking into a
revolving airscrew while engaged in joy-ride work, but Mr.
Parer, at the time of writing, is still alive and showing the
proper pioneer spirit by organising an air line to serve the
Gold Fields in New Guinea.

Another flight by an Australian which won world-wide fame
and must be classed among the glorious failures of history
was the attempt by Mr. Harry Hawker, with Lieut. McKenzie
Grieve, R.N., on board, to fly across the Atlantic. They
left Newfoundland on May 18, 1919, on a Sopwith biplane,
but their engine failed approximately half-way across the
ocean, and by sheer good fortune they were picked up by a
ship without any wireless on board, which eventually landed
them in Scotland after they had been missing for seven days.

The history of Australian Aviation from that time onwards
will be found in the careful record compiled by Mr. Bridgman
which appears hereafter.

One can only say that in their air line work, in the great
flights made by Service and civilian pilots, and in the enter-
prise with which they are supporting their flying clubs,
Australian aviators are showing that they are worthy suc-
cessors to Ross Smith, Oswald Watt, Harry Hawker and
MacIntosh, and the still living pioneers of Australian aviation.

AUSTRALIA'S DEFENCES.

Australia's strategic position in the British Empire, coupled
with the prominent part that Australia has played in Imperial
aviation, naturally lead one to consider the problems of
Australian defence.

Some considerable time ago, in December, 1925, to wit,
one argued at considerable length in this paper on the subject
of Australian Defence. Since then, whether because of that
or merely after that, the feeling in Australia in favour of air
defence has grown considerably. But in spite of the fact that
Australia can neither build nor maintain a defensive fleet of
sea-going ships, the influence of the British Navy in
Australia has been so strong that the Australian Government
has been compelled to spend much more money on quite
useless sea-going ships than on the aircraft which could make
Australia's coast invulnerable.

In the early days of flying Australia showed remarkable
foresight about aerial warfare. As one has already mentioned,
Australia was the only British Dominion to have any military
aviation before the War 1914-18. And since the War Australia
has led all the other Dominions in the general scheme and
organisation of her Citizen Air Force built up on a skeleton
of regular Air Force personnel. But in spite of this fore-
sight Australia has recently been committed to the building
of an aircraft-carrying ship at a cost of £1,300,000.

Just what the Australian Government imagines would be



THE GREAT ADVANCE.—Mail Day at Port Hedland Aerodrome. Two Bristol Tourers and a D.H.50, all with Siddeley Puma engines, belonging to West Australian Airways—the most efficient air line in the World.

THE DE HAVILLAND "MOTH"

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FOR THE PASTURALIST, THE
AGRICULTURALIST, THE PROSPECTOR,
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THE DE HAVILLAND "MOTH" is safe and easy to fly. It is as cheap to run and as reliable as any good motor car. Its 30-80 h.p. "Cirrus" engine can be kept in perfect tune by anyone with a knowledge of motor cycle engines. It can be housed in an ordinary garage and can be flown from a paddock of normal size.

PRICE

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MELBOURNE DEPOT

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the use of such a ship against an invading Japanese Fleet one cannot imagine. Purely for such things as air survey work a small aircraft-carrier, such as could be built for that sum, would make a very pleasant home for young aviators engaged on survey and mapping work round the Australian coast and over the Polynesian Islands which come under the Australian Mandate. But against a hostile fleet such a ship would be even more useless than the cruisers on which Australia is spending money.

On the other hand, for £1,300,000, Australia could establish a number of very useful aircraft bases round the Australian coast and could also buy, or build in Australia out of Australian material, and parts imported from England, quite a respectable fleet of coast defence aircraft. Aircraft carriers are all very well in their way just to carry aircraft and materials from one part of the British Empire to the other, to save wear and tear of the engines of the aircraft. And of course, so long as we go to the expense of maintaining a Battle Fleet, aircraft carriers are necessary to transport aeroplanes for the defence of that fleet. But for a country like Australia which, in the event of a Japanese attack would have the advantage of what strategists call "interior lines of communication," an aircraft carrier is an entirely unnecessary expense, and a waste of good money.

Given a number of seaplane bases round the coast, which could be kept in proper state for occupation by care-and-maintenance parties, which all taken together would be less in number than the crew of an aircraft carrier, the defensive force of aircraft could fly from any given assembling point to any one of those coast defence stations in a fraction of the time which a carrier would take to transport a comparatively small number of aircraft to that station.

There is the added disadvantage that if the carrier were sunk by a sudden enemy attack from the air or from under the sea she would take with her a considerable fraction of Australia's air defence fleet, whereas by sending each aircraft under its own power from station to station there would be little chance of any loss at all except in an ordinary flying accident.

So long as Australia's air fleet held the command of the air over a reasonably wide belt of sea along the Australian coast line all the coast stations could be supplied easily and cheaply by ordinary cargo steamers, which in time of war could be commandeered for the purpose. And it is quite evident that if the Air Defence Force did not command that coastal belt Australia's solitary aircraft carrier would never dare to leave harbour, and would eventually be sunk in harbour by enemy action from the air.

BOMBS AND BATTLESHIPS.

For the benefit of those Australians who did not see the original article on Australian Defence, in this paper, one would point out that, although the British Navy has steadfastly refused to allow the Royal Air Force to experiment with big bombs on obsolete warships, the Air Force has shown with small practice bombs that bombing and torpedoing from aircraft are accurate enough to put a whole fleet of warships out of action with an air fleet which would cost about as much as one cruiser.

Also the American Army Air Service, in defiance of the

most strenuous efforts of the U.S. Navy to prevent the experiment, has definitely sunk several warships—using surrendered German warships as targets.

The American experiments showed that ships could be put out of action by direct hits from bombs on their decks, but that what really did the damage was dropping big bombs each of about 4,000 lbs. weight, into the water alongside the ships so that the ships were lifted bodily out of the water and had their backs broken.

Given an adequate number of aircraft, manned by such aviators as Australia has already provided, no enemy sea-going fleet would dare to come within a hundred or two hundred miles of the Australian coast.

COUNTING THE COST.

No doubt in repulsing such a fleet a good many aeroplanes and aviators would be lost. And naturally after such an action the people of Australia would be shocked to learn that in sinking perhaps half-a-dozen Japanese ships the Australian air fleet had lost perhaps fifty aeroplanes and between a hundred and fifty and two hundred men. That would look very bad on paper until people realised that those six ships probably contained three thousand men, and that thereafter Australia would be safe from invasion for a while.

When the Australian Government is thinking about an air defence fleet, it must think in such terms as that. Instead of thinking of having fifty big torpedo or bombing machines as its total air fleet it must realise that it is possibly going to lose fifty machines in the very first attack on an enemy sea fleet.

One repeats again that Australia showed more foresight before the War 1914-18 than did any other Dominion, and at that time Australia was in no immediate fear of invasion of her own territory. But now, with things shaping as they are in the Pacific, and with all the prospects of the small trouble in China developing into a great Pacific War, Australia must think in terms of self-defence on a big scale.

Fifty or a hundred aeroplanes of the latest offensive type must not be regarded as a possible air fleet but as the possible losses in the first few weeks of a war which is going to last for years. Only in figures such as those is it safe to think when national defence is being considered.

Looking at it another way, the £1,300,000 which Australia is spending on its solitary aircraft carrier would buy 130 bombers and torpedo carriers of the most modern type, putting these big machines at £10,000 apiece. One Japanese bomb or torpedo would sink that aircraft carrier, which, as one has already said, is purely eyewash and of no real defensive value at all. But those same 130 machines, with a bit of luck, might sink very nearly as many millions of pounds worth of Japanese warships before they themselves were destroyed.

The Australian is a pretty good business man. Let him consider which is the better bargain.

CIVIL SUCCESSSES.

To turn to pleasanter matters one would like to congratulate those who have been responsible for Australia's remarkable success in Civil Aviation. No air lines in the World, not even the almost miraculous American air mail line between San Francisco and New York, have such a wonder-



(Australian Official Film.)

COAST DEFENCE.—One of the Supermarine Sea-Gulls (Rolls-Royce engines), which are Australia's most recent sea-going aircraft.

record of regularity and freedom from accident as have the Australian lines.

Major Norman Brearley, of the West Australian Airways Ltd., and Mr. Hudson Fysh, of the Queensland and Northern Territory Aerial Services Ltd., deserve places of their own in history. Some future historian will perhaps be able to do justice to them as having played so great a part in making Civil Aviation what it will have become by that time. And to them must be joined Mr. Larkin, who, though his air lines started long after the other two, had at any rate made a reputation for himself in Australia as an air transport agitator, and has since proved that as an air line operator he is well up to the Australian standard.

Australia has been singularly fortunate in the officials on whom has been put the task of propagating Australian aviation, both Service and civilian. And Australia is equally fortunate in having at this particularly critical period of aviation a Governor-General who himself is a keen aviator. Lord Stonehaven, formerly known disrespectfully but then affectionately in the House of Commons as Johnnie Baird, since he became Governor-General of Australia must have seen from the air several millions of square miles of the territory which he governs. And Lady Stonehaven links with the Lady Maud Hoare and the Duchess of Bedford among the great ladies who are setting a proper example to their peers.

As Chief of the Air Staff Group Captain Williams has shown by his considerably perilous trip over the Pacific lands that he not only believes in air transport but trusts—which is an entirely different thing.

Colonel Brinsmead, the Controller of Civil Aviation, is one of the most persistent air travellers in the World—at least the equal of our Sir Sefton Brancker.

One has only to look at the list of the great Australian flights which Mr. Bridgman has compiled to see how many of those flights have been made by officials on whom rest great responsibilities. It is all very well for an ambitious young man to make colossal flights at great risks to make a reputation for himself or die in the attempt. It is altogether another thing for a man of high rank with great responsibilities and with an assured career, whether he ever goes into the air or not, to make such flights purely in the interests of aviation. Lord Stonehaven, Group Captain Williams and Colonel Brinsmead deserve to rank with Sir Samuel Hoare among the high officials who have gone the right way to work about making their people air-minded.

Altogether Aviation in Australia has a very bright future. Sir Alan Cobham has told us that for practical purposes the country is one vast aerodrome and that one can fly there every day of every week of every year. The population is not large, but it is increasing steadily, and the amount of wealth per head is high.

Thanks to the Australian Immigration Laws, the population is being increased by the right kind of Nordic white man. Therefore the mere figures for population are no true measure of the possible developments of aviation in Australia. The national motto is "Advance Australia," and in no direction are there greater prospects of advance than in Aviation.—C. G. G.

THE ROYAL AUSTRALIAN AIR FORCE.

In 1911 the Committee of Imperial Defence considered the possibilities of the use of aircraft in war and recommended the formation of the Royal Flying Corps as part of the British Army. Senator Pearce, who was then Australian Minister of Defence, served on this Committee, and he was sufficiently rightsighted to see that aviation would in time form an essential part of Australia's Defences.

In 1912 appropriations were obtained under the Vote for the Australian Army for the formation of a Central Flying School, the object of which was to train aeroplane pilots and to form the nucleus of an Australian Flying Corps. Land was purchased at Point Cook, on the shores of Port Phillip Bay, and eighteen miles from Melbourne, Victoria, and in 1913 the erection of suitable sheds and workshops was begun. Two instructors, Mr. Henry Petre (now Major H. A. Petre, D.S.O., M.C.) and Mr. Eric Harrison (now Sqn. Ldr. E. Harrison, R.A.A.F.), four mechanics and five aeroplanes (one

Bristol box-kite, two Deperdussin monoplanes and two B.E.as) were obtained from England.

Mr. Henry Petre, then more familiarly known as "Peter the Monk," who learned to fly in Sept. 1911 and had done a lot of flying on one of the earliest Hanriot monoplanes at Brooklands, had been chief instructor of the British Deperdussin School. At the time of his appointment to the Australian Army he was in the employ of the British and Colonial Aeroplane Co., which is now the Bristol Aeroplane Co., Ltd.

Mr. Eric Harrison also learned to fly in September, 1911 (incidentally both he and Mr. Petre were granted their certificates as aviators by the Royal Aero Club on the same day). He had come to England from Australia as a pupil to the British and Colonial Aeroplane Co., and after learning to fly on Salisbury Plain he became an instructor at the various Bristol flying schools.



AUSTRALIA'S FIRST AIR UNIT.—Left to right, Lieut. Merz, Capt. Petre, Lieut. Harrison, Lieut. Manwell, (standing) Lieut. Williams and Lieut. White.

By June, 1914, the buildings at Point Cook were sufficiently far advanced to allow for the beginning of the training, and it was decided to start the first training course on Aug. 14, 1914.

Concurrently with the formation of the Central Flying School an Aviation Instructional Staff was formed as part of the Instructional Staff of the Australian Military Forces and the personnel of the Central Flying School was appointed thereto.

The first course lasted three and a half months, and it was designed to train four officers, one from the Permanent Forces and three from the Citizen Forces. These first four officers were Lieut. R. Williams (now Group Capt. Williams, D.S.O., O.B.E., Chief of the Air Staff), Capt. T. W. White (now Lieut.-Col. White, D.F.C.), Lieut. G. P. Merz (killed by Arabs in Mesopotamia after a forced landing owing to engine failure) and Lieut. D. T. W. Manwell (now a garage-proprietor at Benalla, Victoria).

Just prior to the beginning of the first course war broke out and the activities of the Central Flying School were consequently increased by adding to the number of pupils at subsequent courses.

FIRST WAR ACTIVITIES.

On Feb. 8, 1915, the Federal Government received a message from the Indian Government asking whether the Australian Government could provide trained aviators, aeroplanes, motor transport and mule drivers for service in Mesopotamia. On Feb. 10 the Secretary for Defence replied that the Commonwealth could furnish some aviators, mechanics and transport, but no aeroplanes.

The only pilots then available in Australia were the two instructors, the four officer graduates of the August-October (1914) flying course and Lieut. W. H. Treloar, who had returned just prior to the outbreak of war after completing a flying course in England.

A small unit consisting of four officers (Capt. Petre and White and Lieuts. Merz and Treloar) and 60 other ranks, under the command of Capt. Petre, sailed from Melbourne on April 20, 1915, for Bombay, and ultimately reached Mesopotamia, where it took part in the operations at Kut-el-Amara and did excellent work under the very adverse and trying conditions encountered in those operations.

The Government persevered with the training of pilots, and so at the end of 1915, at a time when it was very acceptable to the War Office, Australia was able to offer a squadron of Flying Corps for active service.

This Squadron was sent to Egypt, and from June, 1916, it formed part of the Egyptian Expeditionary Force, taking part in operations in Egypt, Sinai, Palestine and Syria. It was the original unit of the Australian Flying Corps, which at the end of 1918 consisted of four Service Squadrons (one in Palestine and three in France) and a Training Wing and four Squadrons in England, comprising something like 500 officers and 2,500 other ranks.

FORESIGHT.

It is to be noted that of all the Dominions, Australia was the only one to realise the importance of, and to take steps to provide for, Air Defence prior to the War 1914-18 and the only Dominion to supply a Flying Corps retaining its Dominion identity throughout the war.

During the war prominent men and public bodies in Aus-

tralia presented to the Imperial Government funds for the purchase of twenty-eight aeroplanes for the use of the Australian Flying Corps. At the conclusion of hostilities the Imperial Government replaced these with new machines, and in addition presented the Australian Government with further 100 aircraft, together with most of the spares, stores, transport, etc., necessary to form Air Force units.

THE POST-WAR AIR FORCE.

On Jan. 1, 1920, the Australian Air Corps was formed and administered by a Director under a Military Board.

Benefiting by England's experience, the Commonwealth Government, realising that a separate Service administered by officers with flying experience would be a more efficient and economical form of expenditure, decided on the formation of the Royal Australian Air Force. This was formed on March 31, 1921, by Proclamation, pending the passage of the Air Force Act.

This Act received Royal Assent on Sept. 1, 1923, under which the R.A.A.F. became a separate Service of the Defence Forces of the Commonwealth. The control and administration of the R.A.A.F. was vested in an Air Council and an Air Board.

The Air Council consists of the Minister of State for Defence (President), two members of the Air Board (the Chief of the Air Staff and the Air Member for Personnel), the Controller of Civil Aviation, the Chief of the Naval Staff (Naval Representative) and the Chief of the General Staff (Military Representative).

The Air Board consists of two Air Members (the Chief of the Air Staff and the Air Member for Personnel) and a Finance Member.

The R.A.A.F. then consisted of a nucleus of a flying Training School, an Aircraft Depot and one Squadron. The total personnel was 21 officers and 136 airmen.

THE FIVE YEAR PROGRAMME.

In 1924, the Australian Government considered the question of defence generally with the result that a five years' development programme was formulated.

This five-year programme was the subject of a lengthy discussion in the House of Representatives of which the following is a précis:—

The Training School already established at Point Cook should be fully equipped, and the gift aeroplanes be re-conditioned, with the exception of the single-seat fighters which should be replaced by new material.

Army Co-operation units equipped with the gift aeroplanes should be established at Melbourne and Sydney, each of one squadron of 12 machines and a flight of four machines with a nucleus of Citizen Air Force personnel and provision for the training of pilots should be stationed at Brisbane, Adelaide and Perth.

Naval Co-operation units should be provided at Sydney with six seaplanes for the new cruisers and six flying-boats with six additional seaplanes for Albany, Newcastle and Torres Straits and six seaplanes or flying-boats for coastal submarine patrol.

There should be 14 modern single-seat fighters for training purposes, four each at Melbourne and Sydney and two each at Brisbane, Adelaide and Perth.

Twelve torpedo-dropping aircraft of standard type and new bombing machines should be provided.

Cootamundra, N.S.W., was suggested as a mobilisation depot as there is direct railway communication with Albury, the junction at the frontier of the New South Wales and Victoria



THE MEN OF TO-DAY.—Staff Officers and Instructors of No. 1 Flying Training School, R.A.A.F., at Point Cook, Victoria.

The Finest Aero Engine in the World

FOR Naval, Military or Commercial purposes, the Napier is the most suitable aero engine to employ.

It has *proved* its success in the Royal Air Force in all types of machines—Fighters, Reconnaissance, Bombers, Troop Carriers, Flying Boats and Seaplanes.

On commercial service Napier engines in use by Imperial Airways have covered over 2,500,000 miles.

It possesses high power—although nominally rated at 450 h.p. it actually develops 502 h.p. at 2,200 r.p.m.

It is consistently reliable—Napier engines have flown to Cape Town, Alexandria, Tokio, South America, etc., all without the slightest mechanical trouble.

It is economical to maintain—some Napier engines in use by the Royal Air Force have covered over 40,000 miles (400 hours flying) before being taken down for examination, whilst Imperial Airways fly their Napier engines 30,000 miles between overhauls.

*Obtain the greatest efficiency, economy and satisfaction
from your aeroplanes by standardising the—*

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where the various railways which are built to different gauges meet. Thus there would be no re trucking of equipment for Sydney or Brisbane.

How far this programme has been carried out can be seen from the statement of the organisation as it existed on June 30, 1926, given later.

TRAINING.

The method of training throughout the R.A.A.F. is based on Royal Air Force standards. All flying training is carried out at the No. 1 Flying Training School, Point Cook, on lines identical with those employed at the Central Flying School in England.

Squadrons are manned by one-third Permanent Personnel and two-thirds Citizen Air Force personnel.

The Fleet Co-operation Flight commanded by Flt. Lt. A. E. Hempel, R.A.A.F., is manned by officers of the Royal Australian Navy, seconded to the R.A.A.F., and permanent personnel only.

Behind the regular and citizen Air Force personnel is the R.A.A.F. Reserve, to which all officers and other ranks on retiring from active duty must transfer. Similarly all pilots and mechanics employed by the civil air lines must belong to the Reserve.

In addition to the training of Flying Cadets, officers, to a limited number, are seconded from the Army and Navy for appointment to the R.A.A.F. for a period of four years.

Four vacancies are allotted to the Civil Aviation Department each year for pilots who are to be engaged in Civil Aviation, the cost of their training being borne by Air Force Funds.

Refresher Courses are given to all civil pilots, as and when required by the Controller of Civil Aviation, free of charge.

In 1924, six officers were undergoing a second year's training and seven officers and N.C.O. pilots were first year students. The 1924 course of training ended on Dec. 31.

The 1925 course began on Feb. 2 and attending this course were 14 pupils, three loaned from the R.A. Navy, five seconded from the Army and six airmen. Of these pupils ten passed out in all subjects on Oct. 31, the remaining four staying on to pass out in one ground subject only.

THE CITIZEN AIR FORCE.

At this time approval was given for the immediate formation of a Citizen Air Force Squadron in the vicinity of Melbourne. This squadron was to consist of three flights,—one of S.E.5as one of D.H.9s and one of D.H.9as, the organisation of which would permit of rapid expansion into a squadron of each type in time of necessity.

This squadron forms the nucleus for the expansion into three Citizen Air Force Squadrons as opportunity offers.

A C.A.F. Squadron consists of a nucleus of permanent personnel and about 15 officers and 150 airmen of the C.A.F. complete the establishment. The period of training of a C.A.F. Squadron is 25 days per annum, of which 17 days are spent in camp either at Point Cook or the Laverton air station (Victoria).

In response to a call for applicants desiring to join the C.A.F. over 200 applications were received for the 30 vacancies, most of the applicants being students of the Universities of Melbourne and Sydney. The first course, of four months'

duration, began on Dec. 14, 1925, and of thirty pupils, twenty one passed out and were posted to squadrons.

In the fourteen weeks' training the pupils of this course averaged 60 hours' flying, making a total aggregate, dual and solo, of 1,775 hours. Eight days after the beginning of the course one pupil had flown solo and another six followed after a further two days' instruction.

The 1926 course began on Apr. 1, and this course of eight months' duration was designed to train pilots for the Permanent Force. Included in its number were ten cadets to be trained for short service commissions in the British R.A.F., under the arrangements made at the 1923 Imperial Conference.

R.A.A.F. ORGANISATION AND EQUIPMENT.

The organisation of the R.A.A.F. for the financial year ending June 30, 1926, provided for the following:—

Headquarters, Victoria Barracks, Melbourne.

Liaison Officer, Air Ministry, London.

No. 1 Flying Training School, Point Cook, Victoria.

No. 1 Aircraft Depot, Laverton, Victoria.

Wing Headquarters (not yet established).

No. 1 (Composite) Squadron, Point Cook, Victoria.

No. 3 (Composite) Squadron, Richmond, N.S.W.

No. 101 (Fleet Co-operation) Flight, Richmond, N.S.W.

Experimental Section, Randwick, N.S.W.

The types of aircraft in use in the R.A.A.F. are as follows:—

Landplanes:—Avro 504K (Clerget and Le Rhone engines) D.H.9 (Siddeley Puma engines), D.H.9a (Liberty engines) S.E.5a (Viper engines), and D.H. Moth (A.D.C. Cirrus engines).

Seaplanes:—Fairey IIID (Rolls-Royce Eagle engine) D.H.50a (240 h.p. Siddeley Puma engine).

Boat Amphibian:—Supermarine Seagull (Napier Lion engine).

With the exception of six Avro 504Ks manufactured in Australia in 1922-23, a few purchased previously, and two D.H. Moths, the whole of the landplane equipment of the R.A.A.F. was presented by the Imperial Government from stock at the conclusion of the war.

The six Fairey IIID seaplanes were bought in 1923, and of these, one, which was used by Wing Comdr. S. J. Goble, C.B.E., D.S.O., D.S.C., and Flt. Lt. I. E. McIntyre, C.B.E., A.F.C., on their historic flight round Australia between Apr. 6 and May 19, 1924, is now in a museum and of the other there are two left which are in charge of the Flying Training School.

The six Supermarine Seagulls were acquired in 1925 and form the equipment of No. 1 (Fleet-Co-operation) Flight.

The D.H.50a seaplane was ordered in May, 1925, and was used by Group Capt. R. Williams, D.S.O., O.B.E., and Flt. Lt. McIntyre, C.B.E., A.F.C., on their flight through the Pacific Islands.

Two D.H. Moths were ordered in June, 1925, for use at No. 1 F.T.S., Point Cook, with a view to examining the possibilities of the use of low-powered aircraft for training purposes.

The landplane squadrons each consist of three flights, one of S.E.5as, one of D.H.9s, and one of D.H.9as.



THE MEN OF TO-DAY.—Warrant Officers and Serjeants on the Staff of No. 1, F.T.S., R.A.A.F.



A. D. C.

CIRRUS AERO ENGINES.

"CIRRUS" AERO ENGINES are in use by the Royal Australian Air Force and the Australian Aero Clubs,

A recent Australian Flight of note is the flight from PERTH to MELBOURNE, 2,000 miles, by Major Hereward de Havilland on a D.H. "Moth" fitted with a Mark II "CIRRUS" engine.

Other "CIRRUS" Achievements include:

5,500 Miles	LONDON to INDIA (2 D.H. Moths. Messrs. Stack and Leete.)
1,464 "	1st King's Cup Air Race, 1926. (D.H. Moth. Capt. H. S. Broad.)
	1st Australian Air Derby, 1926. (D.H. Moth. Sir Alan J. Cobham.)
1,000 "	London—Zurich—London. (D.H. Moth. Sir Alan J. Cobham.)
630 "	Land's End—John o' Groats. (D.H. Moth. Col. The Master of Sempill.)
1,000 "	Tour of British Isles. (D.H. Moth. Col. The Master of Sempill.)
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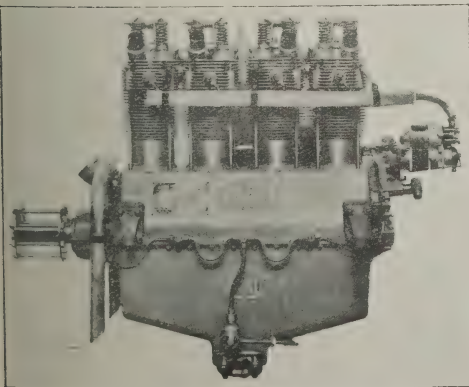
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The Experimental Section at Randwick was established on Jan. 14, 1924, under the command of Sq. Ldr. (now Wing Cdr.) L. J. Wackett, D.F.C., A.F.C.

Two experimental civil aircraft, the Widgeon flying-boat and the Warbler light aeroplane have been produced and two improved types of training landplanes are now being developed, one with a Lucifer or Lynx engine and one fitted with an engine designed by Wing Cdr. Wackett. In addition, a good deal of experimental work has been done with a view to making the best use of the existing aircraft material.

Alterations have been made following on these experiments. This applies particularly to aero-engines, cameras and instruments.

A good deal of research work has been done to ascertain the value of Australian timber for aircraft construction. In addition, a certain number of aircraft have been reconditioned and repaired there and the workshops are used for the technical training of newly-enlisted personnel.

PARACHUTES IN THE R.A.A.F.

On Aug. 5, 1926, the Air Board issued an order that all aircraft in units were to be modified to permit of the crew wearing parachutes. It also announced that pilots, pupils under instruction and passengers were not to undertake a flight of any description in such aircraft as have been fitted unless wearing the approved pattern parachute.

The type of parachute chosen by the R.A.A.F. is the Irving free type, as adopted by the Royal Air Force.

In October, 1926, six officers qualified as parachute instructors. These were Flt. Lt. I. E. McIntyre, C.B.E., A.F.C., Flg. Offs. D. Ross, F. R. W. Scherger, A. D. Davidson, L. W. Sutherland, M.C., D.C.M., and V. H. Angelsen, R.A.A.F.

Practically all the officers and many other ranks of Nos. 1 and 3 Squadrons have made several practice jumps.

SERVICE FLIGHTS.

From the point of view of Service flying in Australia, there have been several noteworthy flights.

The most notable was the flight round Australia by Wing Cdr. S. J. Goble, D.S.O., O.B.E., D.S.C., and Flg. Off. I. E. McIntyre, A.F.C., on a Fairey IID seaplane (Rolls-Royce Eagle engine). These two officers left Melbourne on Apr. 6, 1924 to examine the coastline of Australia from the point of view of coast-defence. They arrived back in Melbourne on May 19 after having covered 8,568 miles in exactly 90 flying hours.

On Sept. 28, 1926, Group Capt. R. Williams, D.S.O., O.B.E., Chief of the Australian Air Staff, Flt. Lt. I. E. McIntyre, C.B.E., A.F.C., and Flt. Sgt. Trist, left Melbourne on a D.H.50 seaplane (240 h.p. Siddley Puma engine) on a flight through the Pacific islands. The object of the flight was to acquire knowledge of the mandated territories of the British possessions in the southern Pacific Ocean and at the same time to investigate the flying conditions in the Pacific and the effect of the climate of these regions on the structure and performance of a standard aeroplane, engine and metal floats. They flew by way of the east coast of Australia to Thursday Island, New Guinea, the Solomon Isles, the Bismarck Archipelago and back, arriving in Melbourne on Dec. 7, after having covered a distance of approximately 10,000 miles.

On Nov. 27-28, 1926, Sqn. Ldrs. Hepburn and Wrigley, the latter acting as navigator and W/T operator, made the first inter-state night flight on a D.H.9 (Puma engine) by flying from Sydney, N.S.W., to Violet Town, where they were

forced to land by a defect in the petrol system. The flight was resumed later and concluded at Melbourne, Victoria. The machine was in constant wireless communication with Melbourne and Sydney throughout the flight, and two night flying beacons at Goulbourn and Albury were used for the first time.

In ordinary routine flying, during 1925, Nos. 1 and 3 Squadrons co-operated with the Army and No. 101 Flg. Sqn. with the Navy. The work of No. 1 Squadron included a flight to Perth, Western Australia, where co-operation with Army units previously had not been possible. Useful work was performed with infantry, artillery and signals units at camp there.

AIR SURVEY.

Much useful work has been, and is being, done by the R.A.A.F. in connection with aerial survey. The Army is at present engaged in the revision of the Military Survey maps of Australia, and a start has been made on areas in Victoria, the R.A.A.F. co-operating by taking photographs of these areas. This work has proved of such value that arrangements have been made for the continuance of R.A.A.F. co-operation and further work was undertaken during 1926.

Similarly, the R.A.A.F. is co-operating with the Royal Australian Navy in a survey of the Great Barrier Reef. In 1924 when the survey was begun, 850 square miles were surveyed, nineteen reefs photographed and mosaics made of them. The aircraft used was a Fairey IID. (Rolls-Royce) operating from H.M.A.S. *Geranium*. Both machine and engine stood up to the work very well and appeared to suffer little from having been exposed to the weather during the period of five months' survey.

This survey was continued in 1926, when three Supermarine Seagulls (Napier Lions) flew from Melbourne to Port Macquarie on Aug. 24 for a resumption of the operations so successfully begun by the Fairey IID.

Aerodromes and Emergency Landing Grounds have been prepared on all the principal routes between the capital cities of each State, as well as in other parts of Australia. These are loaned or leased, as may be requisite, by the Commonwealth and are maintained by the R.A.A.F. or the Controller of Civil Aviation.

Progress has also been made with the preparation of aerial route strip maps.

EXPENDITURE.

In 1925, the Director of Equipment placed a number of contracts for the reconditioning of the 1919 Gift Equipment, amounting in all to £17,500, with a number of civil firms, and similar contracts were placed in 1926 to the extent of £15,265. Up to June, 1926, 115 out of a total of 128 gift aircraft has been reconditioned in addition to engines, transport, cameras and other equipment.

The R.A.A.F. Estimates have shown a steady increase since 1924. For the financial year ending June 30, 1926, the total vote was £434,994 as against £405,004 voted for 1924-25, thereby showing an increase of £28,000. For the year 1926-27, the total vote was £800,000, of which only £25,000 is to be spent before June 30, 1927, on the purchase of new aircraft, though a large amount is to be spent later on air equipment for the new carrier.

It was announced in 1925 that by the building of the two new cruisers *Australia* and *Canberra* of the 10,000 ton "Washington Conference type," in England instead of Australia, with the money that would have been contributed to the cost of the Singapore Base by Australia had the British



THE MEN OF TO-DAY.—R.A.A.F. Cadets of the 1926 Course, and Instructional Staff. Ten of the cadets of this course are coming to England for R.A.F. Short Service Commissions.

Labour Government proceeded with the original scheme, a saving of £818,000 will be effected, and with this saving an Australian-built aircraft-carrier would be constructed. This vessel, of approximately 5,000 tons displacement, has been laid down at the Navy Dockyard, Cockatoo Island, Sydney, and is due for completion in May, 1928.

It is interesting to note that the original estimate of the cost of construction before design and details of equipment were evolved was £800,000, that the contract price for the construction of the vessel to plans and specifications was £941,127, and that the cost of armament, ammunition, equipment and the increases due to the 44-hour week and the Workers' Compensation Act brings the total cost to £1,300,000.

1927 DEVELOPMENTS.

Important developments in the R.A.A.F. are expected during 1927. Although the settlement of the actual details was deferred until the return of the Prime Minister and the Minister of Defence from the Imperial Conference held last year, the main features of the new programme are already laid down.

Chief among the projects in the programme is the proposal to increase the R.A.A.F. by an additional squadron, to provide for the replacement of existing machines with new equipment, for the completion of the new depot at Laverton, and for an increase of personnel for the manning of the new squadron. In addition a number of ship-board aircraft and accessories will be required for the new aircraft-carrier.

In connection with the proposed flight of R.A.F. Southampton flying-boats to Singapore, under Wing Cdr. Cave-Browne, scheduled for 1928, it is expected that a complementary flight of Australian aircraft will link up with the R.A.F. at Singapore.

The question of the type of machine suitable for Australian

CIVIL AVIATION

During the War 1914-18 Military Aviation made progress out of all proportion to that which would have been made under normal peace-time conditions. When hostilities ceased it was the popular idea that Civil Aviation would continue from the stage reached by Military Aviation and it took some time for the early peace-time operators to realise that converted war-aircraft were of little or no commercial value.

It was not until the beginning of 1920 that any real progress in Civil Aviation was evident. The practical utility of aircraft has now been demonstrated in every civilised country and the use of aircraft is becoming wide-spread.

Australia with its vast resources and big open spaces, is particularly suited for the extensive use of aircraft. This was recognised by the Commonwealth Government, and in September, 1920, the then Prime Minister, speaking in the House of Representatives on the Australian Defence Policy, said:—

It is proposed to place such a sum on the Estimates as will encourage Civil Aviation . . . to afford such inducements as are hoped will encourage the manufacturers to make engines and aeroplanes in this country, and the Government will not hesitate to give substantial bonus for that purpose . . . We believe that commercial aviation will afford that reserve of personnel and machines which in an emergency will be necessary to our fighting forces.

In December, 1920, the Commonwealth Government passed the Air Navigation Act, the objects of which were:—

(a) To enable effect to be given to the Convention on Air Navigation signed in Paris on Oct. 13, 1919.

(b) To apply the principles of the Convention not only to international flying, but also to internal flying in the Commonwealth, and generally to legislate by regulation on the subject matter.

Regulations were drawn up under this Act to provide, *inter alia*, for the registration and periodical inspection of aircraft to ensure their safety and airworthiness, licensing of aeroplanes, examination and licensing of personnel engaged in flying, etc., and penalties were provided for breaches of the regulations.

This Act came into force by Proclamation on Mar. 28, 1921, and the Regulations, issued in the previous month, came into force on the same date.

On Dec. 16, 1920, a Controller of Civil Aviation was appointed, his duties being to advise the Minister of Defence generally on Civil Aviation, and in the disposal of the funds made available by Parliament for its development, and to administer the Air Navigation Act and Regulations.

In the latter he is assisted by a small Technical Staff, the principal officers being three Superintendents—all qualified pilots. One is responsible for the examination of pilots and their work. Another is responsible for aircraft and everything connected therewith. And the third is responsible for aerodromes and all ground work.

These officials are Lt.-Col. W. H. Brinsmead (Controller of Civil Aviation), Capt. E. J. Jones (Superintendent of Flying Operations), Capt. E. C. Johnston (Superintendent of Aerodromes), and Mr. R. H. Buchanan (Superintendent of Aircrafts).

CIVIL AVIATION POLICY.

Among the earlier activities of the Department of the Con-

requirements has also received consideration. The fact that there is no established Aircraft Industry in Australia, that distances are greater than in Great Britain and that tactical considerations in British Home Defence differ from those prevailing in Australia are the chief factors necessitating a type of machine somewhat different from that used by the R.A.F.

The absence of an established Industry involves the provision of ample reserves and necessitates a type of machine, the components and engine of which are easily removable and possibly interchangeable with other aircraft.

AUSTRALIA'S NEEDS.

An authority on Naval Aviation in Australia has expressed the belief that the only way Australia can be defended is by establishing a large force of torpedo-carrying aeroplanes. He does not think that Australia requires a Navy—except submarines. He thinks that with torpedo-carrying aircraft and submarines small nations can protect their harbours and coast lines. Also, large flying-boats are required for the heavy seas round Australia. Air Defence for Australia is more important than for England because of Australia's geographical position and limited expenditure.

Without considering these independent views it is obvious that Australia fully realises the importance of Air Defence. The progress made since the establishment of the original Flying Corps, the present standard of efficiency, in spite of the fact that most of the spare work has been done on the gift equipment of aircraft of war-time design presented to the Australian Government by the Home Government in 1919, together with the announcement that over a quarter of a million is to be spent on new equipment, £25,000 of which is to be spent before June 30, 1927, shows that Australia is fully prepared to take her share in the Defences of the Empire.—L. B.

IN AUSTRALIA.

troller of Civil Aviation were the acquisition and preparation of Civil Aviation landing grounds on approved routes throughout the Commonwealth. These routes now cover a total distance of some 5,198 miles, as follows:—

Perth—Derby	... ..	1,467 miles
Adelaide—Sydney	... ..	790 "
Sydney—Brisbane	... ..	550 "
Charleville—Camooweal	... ..	825 "
Melbourne—Hay	... ..	233 "
Mildura—Broken Hill	... ..	189 "
Melbourne—Charleville	... ..	924 "
Cloncurry—Normanton	... ..	220 "

5,198 "

Preliminary surveys of the following additional routes have been made, but no expenditure has yet been incurred in the preparation of landing grounds in their connection:—

Melbourne—Perth	... ..	2,000 miles
Adelaide—Port Lincoln	... via York Peninsula (for seaplanes)	... .. 200 "
Melbourne—Launceston	via Flinders Is. and the N.E. coast of Tasmania	293 nautical miles
Derby—Wyndham	... ..	600 miles
Longreach—Rockhampton	... ..	400 "
Charleville—Brisbane	... ..	440 "

The R.A.A.F. have surveyed and prepared for use a Service route from Camooweal to Port Darwin, by way of Anthony's Lagoon, Newcastle Waters and Katherine. This route is available for civil use.

Up to the present 134 landing grounds have been acquired or leased and prepared for civil use. There are also 11 private licensed aerodromes in use.

In addition to providing regular and speedy transport services in localities where the older forms of transport and communication were wholly or practically non-existent, it was considered that the granting of contracts for subsidised aerial services would give an impetus to the development of Civil Aviation in Australia, while the trained flying and ground personnel would provide a technical reserve for air defence in case of war.

THE ORGANISED AIR LINES.

So far, that is up to Dec. 31, 1926, tenders have been called and contracts allotted for operation of the following routes:—

Perth—Derby	(West Australian Airways Ltd.).
Charleville—Camooweal	(Queensland and Northern Territory Aerial Services Ltd.).
Adelaide—Cootamundra	(Larkin Aircraft Supply Co.).
Broken Hill—Mildura	(Larkin Aircraft Supply Co.).
Melbourne—Hay	(Larkin Aircraft Supply Co.).

The Department provides properly prepared landing grounds over the subsidised routes but the contractors must provide the necessary sheds and workshops. Such buildings may be erected on the landing grounds, only a nominal rental being payable to the Department for land so used.

In practically all contracts that have been let the service has to be performed once weekly in each direction. Pro-

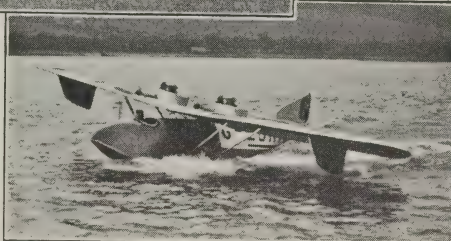
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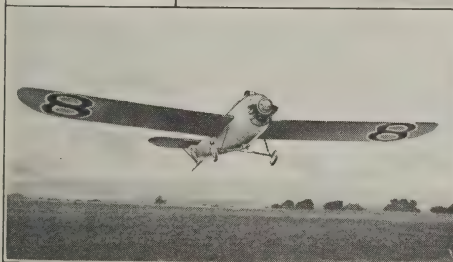
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Flying Boat.



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Sporting
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vision is made for the deduction of a proportion of the subsidy in the event of failure to complete any trips.

Contractors must carry free up to 100 lbs. of mail on each trip. Letters for transmission by aerial mail are charged an extra 3d. per half ounce. The extra amount so received by the Postmaster-General's Department, less any additional expenditure incurred by that Department in the handling of aerial mails, is paid to the Defence Department as a credit to revenue.

All pilots and mechanics employed on these services are required to join the R.A.A.F. Reserve.

Originally all contracts were for twelve months, with subsequent renewals for similar periods, but the three companies are now operating under three-year agreements, which provide for revision of the subsidy rate at annual intervals.

The subsidy rates for each company are the same, namely 4s. per mile in the first year, with possible reductions to 3s. 6d. and 3s. per mile in the second and third years respectively.

The dates upon which these agreements came into force and the maximum annual subsidy for the individual services are as follows:—

Perth—Derby: Beginning December, 1923, maximum annual subsidy, £30,000.

Charleville—Camooweal: Beginning November, 1925, maximum annual subsidy, £17,000.

Adelaide—Cootamundra: Beginning July, 1925, maximum annual subsidy, £12,022.

Mildura—Broken Hill: Beginning July, 1925, maximum annual subsidy, £7,862.

Melbourne—Hay: Beginning July, 1925, maximum annual subsidy, £9,692.

To-day, in Australia, more so perhaps than in any other country, the air services are a useful and important feature of the regular transport system. By their means the delivery of mails and newspapers is accomplished in hours instead of days, or days instead of weeks. Business men and others, either by using the regular services, by chartering a special "taxi" machine, or by a combination of the two, are able to embark on long journeys which previously would have been impossible or would have meant a great loss of valuable time.

It would appear that the future of Civil Aviation in Australia is assured. The standard of operation is very high. A total distance of over 1,200,000 miles has been flown in regular transport and taxi-work with only two fatal accidents, and public confidence in the services has been firmly established. Traffic is increasing steadily as the services become better known. And although the day when Australian Civil

Aviation will be self-supporting is not yet definitely within sight, the fact that at least one company has been able to show a profit on a year's working is distinctly encouraging.

Hereafter follow descriptions of the three subsidised aircraft operating companies.

Western Australian Airways Ltd.

This company was formed in Perth, W.A., in 1921, by Major Norman Brearley, D.S.O., M.C., A.F.C., as the result of his having been granted the contract for the operation of the Geraldton—Derby air route in Western Australia.

This service was the first subsidised commercial air line to begin operations in Australia. The original route from Geraldton to Derby ran via Carnarvon, Onslow, Roebourne, Whim Creek, Port Hedland, and Broome, a total distance of 1,195 miles, and for this route an annual subsidy of £25,000 was granted.

Prior to the opening of the service six Bristol Tourer bi-planes (240 h.p. Siddeley Puma engines) were purchased and five pilots were engaged. These were Messrs. V. R. Abbott, H. A. Blake, R. A. M. Fawcett, L. E. Taplin, D.F.C., and C. E. Kingsford-Smith, M.C.

As very few Australian pilots had done any serious flying since re-patriation, a special refresher course was arranged at the Central Flying School, Point Cook, for applicants, and Major Brearley selected eight from a total of twenty-seven applicants and from these eight the above five were chosen after a very searching examination both in flying and other subjects.

The whole length of the route was thoroughly organised and each of the six intermediate stopping places was fully equipped with tools and gear adequate for the maintenance of a successful service.

The accommodation at the various stops was as follows:—Geraldton, shed for four machines; Carnarvon and Port Hedland, shed for two machines; Broome and Onslow, shed for one machine. All sheds were equipped with crane, block and tackle and ample supplies of petrol in bulk.

A substantial shed and workshop was erected at Perth, where a small but highly-skilled staff was employed in overhauling and maintaining the company's machines at regular intervals.

Of the equipment of six machines four were kept in regular circulation on the mail route, each machine being away from the Geraldton terminus for three weeks and on its return being given a ten-days' overhaul before taking its place on the line again.

The inauguration of the line was tragic.

On Dec. 3 the service was officially opened by the Governor of Western Australia and three of the company's machines





"Flight" Photo.

An Impression of the FAIREY "FOX" day bomber,

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made joy-rides over the aerodrome and carried various passengers.

On Dec. 4 the same three machines, piloted by Major Brearley, and Messrs. Taplin and Fawcett, left Perth for Geraldton to open the mail route. On the following day these machines left Geraldton with mail for Derby.

Mr. Taplin's machine was forced to land because of engine trouble, and Mr. Fawcett in flying low to see if assistance was required, stalled his machine and crashed. Both he and his mechanic, Mr. Broad, were killed.

Although it may seem unkind to recall this accident after the extraordinary success of the air line since that date, one feels that, as nobody was to blame, the mere mention of it serves to show that in spite of the amount of adverse publicity given to the accident in the Australian press, to whom aviation was a comparative novelty and a possible source of sensational copy, the inhabitants along the route did not take long to realise the true value of commercial aviation.

Following on this accident, the service was suspended pending the receipt of the findings of an official court of inquiry.

On Feb. 21, 1922, an interim service was begun between Geraldton and Port Hedland (775 miles) with one trip each way weekly.

On Apr. 6 the full service from Geraldton to Derby (1,195 miles) came into operation and from this date until the present, this route, together with its various extensions, has operated at approximately 100 per cent efficiency, one of the most remarkable expositions in the whole World of the value of commercial aviation.

The route follows the west coast of Australia and the only alternative means of transport connecting the various points on the route is a steamer route, which operates at lengthy intervals only.

In its first eight months of operation on the full route, the company's machines flew 86,000 miles and more than 97 per cent. of the trips were completed strictly to schedule. The number of letters carried during this period (6.4.22—31.12.22) was 70,000, the monthly figures growing from 4,000 carried during April, to 12,000 carried during November.

The service gradually grew in popularity. By the end of 1923 the company had covered 226,497 miles in 2,871 flying hours, had taken 845 passengers over single stages, and had carried 183,344 letters and 7,852 lbs. of freight.

On Dec. 5, 1923, the company's contract was changed from an annual one to one of three years, and provisions for two extensions, one from Geraldton to Perth and one from Derby to Wyndham were added to it, together with an increase of subsidy from £25,000 to £30,000, to cover the extension of the route to Perth.

This extension came into operation in January, 1924, making the total length of route 1,442 miles. This distance was covered regularly in 2½ days as compared with the average of 13 days by the irregular service of coastal steamers.

During 1925 the company added two D.H.50s to its fleet of six Bristol Tourers, and by the end of the year they had covered 547,906 miles in 7,240 machine-hours, had taken 2,729 passengers over single stages, and had carried 630,000 letters and 270,027 lbs. of freight since the opening of the route—without any trouble of any kind.

Freight carried included live chickens, medicine, newspapers, motor and machinery parts, and wearing apparel. On the return journey from Broome, valuable parcels of

pearls are frequently despatched to the State capital, Perth, and thence forwarded to Europe and America.

The increased prices obtained for pearl shell have led to renewed activities at Broome, which produces three-quarters of the World's output, and as a result some of the consignments of gems carried south have represented record figures in the value of single mail loads.

Examples of the value of the air way to those using the regular or special machines are too numerous to mention individually, but one or two quoted at random show to what varied purposes the machines of the W.A.A. Ltd. are put.

During February, 1926, a Perth barrister by using the airway attended the court at Roebourne, flew on to Broome the next day, attended the local sessions, and was back in Perth two days later after having flown a distance of 2,884 miles.

In June, 1926, a record for the delivery of the English mail in Broome was made when letters were received there by air mail 30 days after posting in London. To go on quoting examples of this nature would overrun the reading space of THE AEROPLANE.

The growth of the use of the air mail route for letters is shown by the fact that for the year ending April, 1923, 105,060 letters were carried. For the year ending April, 1926, this figure had grown to 244,298 letters.

During June, 1926, the Governor of Western Australia flew from Perth to Broome during the course of a nineteen-day tour of the North-West, in which he covered 2,000 miles by motor-car and 2,500 miles by air.

On Aug. 29 the Governor-General of Australia, Lord Stonehaven and Lady Stonehaven, accompanied by Flt. Lt. Davidson, R.A.F., A.D.C., and Major Nicholl, flew from Perth to Carnarvon.

By the end of 1926 724,594 miles had been covered over the route without any trouble. Up to the end of October, 1926, the company had carried 840,826 letters, and up to the end of November, 1926, 3,342 passengers over single stages since the inception of the route.

In November, 1926, the company completed and tested their first locally-built D.H.50 and early in 1927 two more were turned out.

These three machines together with the three purchased from the De Havilland Company in England, make up the fleet of the company, the last two Bristol Tourers being withdrawn from regular service and kept standing by for cases of emergency only.

On Jan. 1, 1927, the company called in fresh capital, increased their plant, and re-formed under the new title of West Australian Airways Ltd.

From this date they began operating a supplementary service between Perth and Carnarvon to meet the wishes of the business community of the latter town. This supplementary service is not subsidised by the Government but instead the Postmaster-General has agreed to the company being credited with the amount of the aerial surcharges (3d. per ½ oz.) on mails carried on such trips.

Major Brearley has kept in view the possibility of extension of what is the longest passenger-carrying air line in the World and during 1925 he entered into negotiations with the K.L.M. for the establishment of a Port Darwin—Singapore route by way of the Dutch East Indies. This possibility is receiving the attention of the Government of the Netherlands.

Early in 1927 the Controller of Civil Aviation called for



HOME SWEET HOME.—A D.H.50 (Puma engine) of West Australian Airways, delivering a station owner at his own landing ground beside his homestead, 600 miles from Perth and 100 miles from the nearest regular landing ground.

tenders to be received by Apr. 30, for the establishment of a weekly air mail service between Perth and Adelaide. This action was largely prompted by Major Brearley who has been examining the possibilities of this route very closely.

Such a service would mean a saving of two days in each direction over the existing railway times, so that the English mail would be accelerated by that amount in its transit from Perth to Adelaide and vice versa.

April should see the Flying School for the training of civilian pilots well under way, and a sufficient number of applications for enrolment have already been received to keep one instructor busy for several months. D.H. Moths will be used.

The school is being conducted by W.A. Airways Ltd. under arrangement with the Commonwealth Government. This arrangement permits of fifty pupils per annum qualifying for pilot's licence at a reduced rate of £30 each, the payment of which may extend over several weeks. Women are eligible for training under the same conditions as men, and two have already enrolled for the course. The greatest enthusiasm is being shown by all concerned in this new development, which means so much to Australia and Australians.

The Queensland and Northern Territory Aerial Services Ltd.

This company were the successful tenderers for the operation of the Charleville—Cloncurry air route in February, 1922. During the previous eighteen months, however, the company had been operating over this particular territory with conspicuous success without a subsidy and had thereby prepared the inhabitants of this inaccessible, but at the same time ideal, flying territory for the advent of the regular Government-subsidised route.

The early success of Quantas was attributable to the fact that the whole of its shareholders possessed practical interests in the territory covered.

During the first year of its unsubsidised operation, the company's two pilots, Mr. P. J. McGinnis, D.F.C., and Mr. Hudson Fysh, D.F.C. (both former members of No. 1 Sqdn., A.F.C.), covered 29,500 miles and carried 1,100 passengers in 500 flying hours. During the first eighteen months no fewer than 62 special trips, covering a distance of 5,800 miles, were made and duly completed without forced landing or delay.

It was during this early period that the value of the aeroplane for transporting the sick, or for obtaining medical aid over a very wide territory which is without any other form of regular transport and whose roads become impassable during the wet season, was first realised and fully demonstrated.

Between Winton and Longreach alone over twenty flights were made over flooded rivers and bogged roads which in most cases meant the saving of as much as ten days. By these demonstrations, which could be multiplied times without number, Quantas opened the way for commercial aviation in their own particular territory.

In calling for the tenders for this route, the Assistant Minister for Defence stipulated that the contractor should make one trip each way between Charleville and Cloncurry calling at Tambo, Blackall, Longreach, Winton and McKinlay each week, and that sufficient space for the accommodation of 100 lbs. of mail had to be provided in each machine per trip.

The approximate mileage of the route was as follows:—Charleville—Tambo (105 miles), Tambo—Blackall (60 miles), Blackall—Longreach (100 miles), Longreach—Winton (110 miles), Winton—McKinlay (130 miles), and McKinlay—Cloncurry (70 miles), making a total for the route of 575 miles.

The first contract to be covered was for a period of twelve months from the date of the inauguration of the service, the rate of the Government subsidy being £12,000, at a rate of 4s. per mile flown.

Sheds were erected by the contractors at Longreach, Charleville, Cloncurry and Winton, for the accommodation for four, two, two and one machines, respectively, and a workshop was provided at Longreach capable of doing all necessary repairs to engines and aircraft.

Charleville, Longreach, Winton and Cloncurry are each termini for railways connecting with the coast, Charleville being the railhead for Brisbane, Longreach for Rockhampton and Winton and Camooweal for Townsville.

The flight from Charleville to Longreach, two of the most important sheep and cattle centres in the Commonwealth, a distance of 265 miles, only takes a few hours, with an air fare of £10 10s., whereas to get from one of these centres to another by railway involves a journey from Charleville to Brisbane, thence up the coast to Rockhampton and back into the hinterland to Longreach, which is equivalent to going round three sides of a square. This railway journey takes at least six days and costs £11 10s., which does not include incidental expenses, refreshments en route, hotel bills, etc.

The same conditions apply to the journey from Longreach to Winton or Cloncurry and naturally from Charleville to Cloncurry.

The aerodromes at the various stops already mentioned were prepared by the Department of Civil Aviation and the R.A.A.F., and the contracting company arranged for various additional landing grounds on private properties along and adjacent to the route.

The service was due to begin operations on Aug. 1, 1922, with the following equipment: two Vickers Vulcan eight-seater biplanes, one D.H.4, one Avro triplane, one Avro 504-Dyak, and one B.E.2e. But owing to industrial trouble in England resulting in a delay in the delivery of the two Vulcans this date was postponed.

Later the company was authorised to begin operations on Oct. 5 with the D.H.4, the Avro-Dyak and two Armstrong-Whitworth F.K.8 biplanes, which latter machines would be withdrawn on the arrival of the Vulcans.

In the meantime it was found from practical test that the Vulcan was unsuited to local conditions and a Bristol Tourer fitted with a 300 h.p. Hispano-Suiza engine was acquired partly to fill the gap in the company's fleet.

With this equipment the service was started on Nov. 2, 1922. And during the first six months of subsidised operation 30,350 miles were flown in 412 flying hours and 118 passengers were carried without any trouble whatever.

Although the service was begun before the wet season it was found during this first six months of operation that the rainy season had no effect whatever on the time-table. With no previous experience of regular flying during this period it was expected that regular operation of the service might have been interrupted. The only effect was an increase in the revenue derived from the transportation of weather-bound cattle-men, no less than fifteen inter-station passengers being carried during the wet week ending Dec. 23, 1922.

On Feb. 7, 1925, the service was extended from Cloncurry to Camooweal by way of Duchess and Mount Isa, making a total length of route of 825 miles.

This new extension not only served to connect Camooweal with the various railways communicating with the coast, but also passed through the new silver-lead mining district of Mt. Isa, in this case reducing a journey of two or three days by car through difficult country to a three or four hour journey by air.

Up to the end of January, 1925, Quantas had flown a total distance of 132,092 miles, and carried 1,113 passengers, 9,388 lbs. of freight, and 10,617 letters without any mishap.

The extension of the route to Camooweal resulted in an increase in the subsidy from £12,000 to £17,160, and on Nov. 2, 1925, the contract was changed from an annual one to one of three years' duration.

Apart from working the regular air line, Quantas carried out a large amount of taxi work, and it was reported that during the two and a-half years previous to May, 1925, 240 passengers had been carried on urgent errands, both to places on the main route and to many remote districts, and that not once had the company failed to carry out a flight.

In many cases patients had been conveyed to hospital where road travel and the delay might have proved fatal, and doctors had been carried on many urgent missions. The use of the airway abolished delay and in many cases was instrumental in saving life.

Similarly, owners of cattle and sheep who were threatened with heavy losses through drought have, by using the air route in search of new grazing land and watering places, achieved in a few days what would have otherwise taken many weeks.

By 1926 the flying equipment of the company was becoming modernised. Two D.H.50as had been purchased from the de Havilland Co. and at the same time the company acquired the manufacturing rights for this type.

The old Armstrong-Whitworth F.K.8s had been sent to the breaking-up yards, the D.H.4 converted to a cabin machine and retained solely as an ambulance, and two D.H.9cs and the Bristol Tourer, acquired when the service was extended, were only awaiting replacement by new D.H.50s to be constructed by the firm.

On Aug. 18, 1926, the first locally-built D.H.50a was launched at Longreach by Her Excellency Lady Stonehaven. This machine, christened "Iris" on its maiden voyage, carried their Excellencies Lord and Lady Stonehaven from Longreach to Newcastle Waters, Northern Territory, a distance of 1,200 miles, in four scheduled stages. The machine arrived at its destination on time, and at least eight days ahead of the best time that could have been made by any other means of transport under similar conditions.

In addition to Vice-Regal patronage, the Prime Minister, the Right Hon. S. M. Bruce, and various Members of Parliament have used the service from time to time.

Another important milestone in the progress of the company was the starting of the Longreach Flying School and Light Aeroplane Club.

This school was opened on Dec. 27, 1926, under the scheme devised by the Controller of Civil Aviation, with one D.H. Moth and Mr. C. Matheson as Club Instructor. Further

details concerning this school and the scheme by which its establishment became possible will be found elsewhere in this issue.

By the end of 1926 the company had covered 429,098 miles without injuries to either personnel or passengers since its inauguration and during January, 1927, a further 10,283 miles were flown.

Its first year's operation was performed with an all-round efficiency of 97 per cent. and its second, third and fourth years at 100 per cent.—a most remarkable record.

For the year ending June 30, 1926, the company was able to show a profit of £6,370.

The attitude of this company towards the progress of aviation in Queensland is very aptly put by Mr. E. J. Hart in the November issue of our Australian contemporary *Aircraft*, as follows:—

The shareholder who does not look for an almost immediate profit on his investment is, alas! all too rare. But he is not wholly extinct. The shareholders of "Quantas" have unanimously agreed to draw no dividend in respect of this last year's profit. Their decision is "to put the money towards the support of any new form of the Company's operations or any new aircraft venture which may seem likely to assist in the development of civil aviation in Queensland."

Here we see the true pioneer spirit in excelsis. It is the only spirit in which the millennium of an unsubsidised air transport service—possibly ten, or even five, years hence—may be anticipated.

At the end of 1926 the company was negotiating with the Department of Civil Aviation for the establishment of an air line between Brisbane and Toowoomba (80 miles). By this service the time taken by air mails between the Brisbane and Toowoomba G.P.O.'s and vice versa would be only 1 hour 40 mins., and by its use business men at either end of the route would be enabled to get a reply to their letters in 20 hours as against approximately 42 hours by train.

This service will be unsubsidised, but the Postmaster-General has agreed to the company being credited with the revenue obtained from aerial surcharges on mails.

An attempt is also being made to extend the main line from Cloncurry to Normanton (220 miles) on the Gulf of Carpentaria. Normanton is the centre of a well established cattle industry and a rapidly expanding sheep industry. Ordinary communications are bad, there being only one steamship per month and mails between Normanton and Brisbane are some ten days en route. By air this would be reduced to three days.

The Larkin Aircraft Supply Co. Ltd.

The first contract for the maintenance of a weekly return air service between Adelaide and Sydney (790 miles) and Sydney and Brisbane (550 miles) was granted to the Larkin Aircraft Supply Co. in 1921.

Owing to various causes delays occurred, and it was not until June 2, 1924, that the contractors began operations. These were confined to the Adelaide-Sydney section only, with a subsidy of £17,500 per annum.

This service was maintained until July 19, 1925, when the Government entered into a further agreement with the company, who, under a three years' contract, and with a subsidy at the rate of £29,500 per annum for the first year, began operations over the following routes:—

- (i) Adelaide-Cootamundra (578 miles) via Mildura, Hay and Narrandera (once weekly in each direction).
- (ii) Broken Hill-Mildura (189 miles) (twice weekly in each direction).
- (iii) Melbourne-Hay (233 miles) via Echuca and Deniliquin (twice weekly in each direction).

The Adelaide-Cootamundra route is the main trunk line, the other two routes acting as feeder services.

Connections are made at Hay on westbound trips with 20 minutes to spare, and at Mildura on eastbound trips with 35 minutes to spare. Passengers for Sydney change at Cootamundra, the time-table being arranged accordingly. Similarly on the Western journey, the time of departure of the aeroplane synchronises with the arrival of the train from Sydney.

In both cases passengers may book with the company's agent combined journeys by aeroplane and train.

Broken Hill is one of the largest inland cities of the Commonwealth, and the journey to Sydney of 69 hours by train is reduced to 19 hours by aeroplane and train.

The company employs five pilots, and the machines used on the service are: three D.H.50A's, one D.H.4a, the Sopwith Wallaby (which machine was used by Capt. G. C. Matthews on his attempted flight to Australia in 1920), a Sopwith Antelope (which was built for the 1920 Air Ministry Commercial Aeroplane Competition in England), and three A.N.E.C.III's (which were the Handyside monoplanes originally designed for the Larkin Company in 1921 and rebuilt by the Air Navigation and Engineering Co. in 1924 as six-seater biplanes).

In addition, for short distance work and taxi trips, the company owns a Sopwith Gnu, a Sopwith Dove and an Avro 504.

The company completed its first year of operations with

an efficiency of 100 per cent. in completed scheduled trips, and at the first annual examination of its financial position the possibility of reducing its subsidy from 4s. to 3s. 9d. per mile was examined.

Among the prominent passengers carried on this route have been their Excellencies the Governor-General and Lady Stonehaven, Lord Stradbroke, Governor of Victoria, Sir Tom Bridges, Governor of South Australia, and Lady Bridges, the Right Hon. S. M. Bruce, Prime Minister of Australia and the Hon. Dr. Earle Page, Acting Prime Minister.

Since July 1, 1924, and up to Nov. 30, 1926, the company has flown 324,062 miles, and has carried 790 passengers and 52,976 lbs. of freight.

The aggregate weekly distance flown by the company is 2,844 miles, and the greatest number of passengers carried in one week was 175, carried during October, 1926.

This company is known to the Government as the Larkin Aircraft Supply Co. Ltd., as the Government refused to sanction the sale of its Government contracts to the Australian Aerial Services Ltd., the new name of the company, which was formed in 1922 to amalgamate the air line interests of the Larkin Aircraft Supply Co. and of Mr. F. L. Roberts, each of whom had been awarded contracts for the operation of the Sydney-Brisbane-Adelaide and the Sydney-Melbourne air route.

Statistics of Regular Aerial Services in Australia.

FROM DECEMBER 5, 1921 TO NOVEMBER 30, 1926.

—	Perth-Derby (W.A.)	Larkin Services.	Charleville-Canoowael (Queantas).	Totals.
Length of Route ...	1,442 miles	1,000 miles	825 miles	3,267 miles
Date inaugurated ...	5.12.21*	2.6.24	21.11.21	9.6.50
Machine Flights ...	4,136	2,481	3,083	1,308,033
Machine miles ...	694,021	309,936	304,076	17,091'35"
Hours flown ...	9,189'25"	3,997'50"	3,904'20"	
Paying passengers carried over single stages ...	3,342	1,428	3,471	8,241
Paying passenger miles ...	600,169	164,091	332,643	1,096,903
Paying passengers injured on scheduled trips ...	nil.	nil.	nil.	nil.
Letters carried ...	840,826 to end of Oct. 1926.	18,028 (to end of Oct. 1926).	65,561 (to end of Oct. 1926).	924,415
Freight carried (lbs.) ...	73,008	3944	34,723	108,1254

* Geraldton-Derby, 5.12.21; Perth-Derby, 15.1.24.

† From 2.6.24 to 19.7.25 a weekly service was maintained by the Larkin Aircraft Supply Co. between Adelaide and Sydney (790 miles). On 19.7.25 the Adelaide-Sydney route was discontinued but on 21.7.25 the following services were inaugurated:—

Adelaide-Cootamundra (578 miles) Once each way weekly.
Broken Hill-Mildura (189 miles) Twice " " "
Melbourne-Hay (233 miles) " " "
Charleville-Cloncurry, 2.11.22, Charleville-Canoowael, 7.2.25. W.A. and Quantas operate once weekly in each direction.

All companies fly 7,378 miles weekly, thus:—

West Australian Airways, Ltd. ...	2,884 miles
Larkin Aircraft Supply Co., Ltd. ...	2,844 miles
Queensland and Northern Territory Aerial Services, Ltd. ...	1,650 miles
Total	7,378 miles

Tasmanian Air Services Ltd.

This company was formed late in 1926 for the primary purpose of establishing and maintaining a regular passenger, mail and freight air service between Victoria and Tasmania. Provision for extensions of the service to other ports and to other States, for the operation of tourist and taxi services, aerial surveys and the opening of a flying school in Tasmania were made in the company's prospectus.

During 1924 Capt. E. C. Johnston, the Superintendent of Aerodromes to the Department of Civil Aviation, had made a survey of a route between Melbourne and Launceston, and this was submitted to the Controller of Civil Aviation on Dec. 9, 1925.

This survey was made with two Fairey IID's of the R.A.A.F., piloted by Flt. Lt. I. E. McIntyre, C.B.E., A.F.C., and Flt. Lt. A. E. Hempel, R.A.A.F.

On the strength of this survey the company was tentatively formed, and on the publication of the official report the Tasmanian Air Services Ltd. was officially registered.

The registered office of the company is Collins House, Melbourne, and its principal officers are:—Lieut.-Col. T. W. White, D.F.C., V.D., managing director (late No. 1 Sqdn. A.F.C.), Sir Alfred Ashbolt, K.C.B. (late Agent-General for Tasmania in London), Messrs. C. D. Pratt and L. M. Macpherson, directors, Capt. G. N. Moore, D.F.C., secretary, and Mr. P. J. Pratt, chief pilot.

The capital of the company will be £100,000.

The route to be followed will be the one recommended by the Superintendent of Aerodromes, and will be 293 miles in length.

With regard to equipment, provision was made in the pros-

acts for the purchase of four three-engined twelve-seat amphibians in England.

Assuming that the company is granted the customary subsidy of 4s. per mile, the passenger fare between Melbourne and Launceston would not be more than £4.

This company, which so far has not done anything else and become officially registered, can be taken as being very und.

Of the directors, Lieut.-Col. White is a well-known figure political, commercial and military circles in Australia. He is one of the first course of four officers to attend the Central Flying School at Point Cook in 1914, and he proceeded overseas in command of the first half-flight of the Australian Flying Corps in April, 1915.

He was later the first Hon. Secretary of the Australian Aero Club which was formed in 1914 at Point Cook.

Sir Alfred Ashbolt, K.C.B., formerly Agent-General for Tasmania in London, was largely instrumental in the launching of the Burney Airship Scheme and is well known in this country as an ardent supporter of aviation.

The brothers P. J. and C. D. Pratt have been actively associated with aviation in Australia since 1919, when they established the Aircraft Manufacturing and Supply Co. in Melbourne, Vict. This company is now one of the most important firms engaged in the reconditioning of R.A.A.F. equipment.

Mr. L. M. Macpherson is also a director of the Australian Aerial Services Ltd.

As the proposed route of this company follows very closely one of those laid out in the official report which considers the service would be "quite feasible and would be of great benefit to the residents of Tasmania, particularly during the frequent disorganisations of the shipping services," it would seem to be only a matter of time before this company added to the list of successful commercial aircraft operators in Australia.

Other Civil Activities.

In addition to the activities enumerated in the foregoing article on subsidised air lines, there is a considerable amount of flying done by private and commercial owners of aircraft in Australia.

These are not very numerous, but their operations are none the less valuable as a medium of propaganda. For the most part they are engaged in aerial photographic work for newspapers or commercial firms, advertising, taxi work, and occasional joy-rides at country shows or race meetings.

One of the most prominent and consistent civil aviators, who is unconnected with any of the recognised flying companies, is Capt. Edgar Percival. After serving in the 1st Australian Light Horse he transferred to the R.F.C. and served for a short while in 60 Squadron. Later he became flying instructor at Aboukir and, transferring to No. 3 Squadron, A.F.C., served in Palestine and Egypt.

In 1920 he returned to Australia with two aeroplanes and began a successful career as a civil aviator. It is said that he has done more for Australian aviation, both sporting and commercial, than any other single man. He has owned some

eight different aeroplanes since returning to Australia, all of which he has rebuilt, and in these he has carried over 7,000 passengers without any mishap.

His most famous machine is an Avro fitted with a 200 h.p. Viper engine and a Lamblin radiator, which is known all over New South Wales.

In addition to joy-rides and cross-country work, he has done a lot of night flying for advertisement purposes. On the sporting side he has competed in every Aerial Derby, one of which he won on a Boulton and Paul P.9. He was first in the 1924 Light Aeroplane Competition.

He is a most competent engineer, is an A.F.R.Ae.S., holds the "A," "B," and "C," ground engineer's certificates, and does all his own rebuilding and tuning of engines. It is said that his engines have never been known to "cut out" in the air. Altogether a most enviable record.

Another owner-pilot who is doing good for aviation in New South Wales is Mr. S. L. Tyler, a veteran of 47 years of age, who is the Sydney agent for Buick cars. He owns an Ireland Comet (American) biplane.

On Jan. 25, 1927, he left Sydney with a passenger at 07.00 hours and arrived at Melbourne at 16.00 hours. After doing a day's business he flew to Adelaide on Jan. 27, and after a two days' stay there returned to Sydney on Feb. 1. On this business tour he covered nearly 2,000 miles in 24 hours' flying time.

Another propagandist is Mr. H. C. Miller, who resigned from the R.A.A.F. in 1926, acquired a D.H.9 and flew up from Melbourne to Broken Hill over virgin country and established himself there. He has taken up hundreds of people for joy-rides and has converted many to seeing the virtues of the air mail routes. He has since moved to the Albert Park aerodrome, Adelaide, where he is carrying on the good work.

The Shaw-Ross Aviation Co., of Port Melbourne, is an old-established company which has been doing a lot of aerial photography, notably for the Melbourne Harbour Trust Commissioners.

This company has also done a considerable amount of reconditioning work for the R.A.A.F.

Capt. G. C. Matthews, who flew from England to Sumatra in a Sopwith Wallaby in an attempt to reach Australia by air, has been actively engaged in civil aviation since his return. He formed the Aero Engineering and Construction Co., at Essendon, and has done some reconditioning work for the R.A.A.F.

During 1926 he and Mr. Keith Gardiner formed a new company known as Matthews Aviation, which has taken over the assets and obligations of the old company, and in addition has opened a flying branch which will engage in all branches of flying, including the training of pupils and cross-country work. The equipment of the firm includes a three-seater Avro-Dvack and a D.H.9.

It is impossible to mention more than a few of the people who are actively engaged in civil aviation in Australia. There are others, but it has been impossible to obtain information concerning their more recent activities.—L. B.



(Australian Official Film.)

ELEMENTARY TRAINING.—Getting out an Avro 504K (the standard training machine in Australia as everywhere else) at No. 1 F.T.S., R.A.A.F.

THE AUSTRALIAN AIRCRAFT INDUSTRY.

The choice of the above title is open to criticism, as at the moment an Aircraft Industry as such can hardly be said to exist. However aircraft construction has been undertaken in Australia, notably by the ill-fated Australian Aircraft and Engineering Co., which ceased to exist in 1923, and more recently by the Queensland and Northern Territory Aerial Services and by the Western Australian Airways, both of which have constructed D.H.50's under licence for use on their airlines.

Also there is the Experimental Section of the Royal Australian Air Force at Randwick, N.S.W. This last establishment, however, in spite of the fact that it has produced two types of civil experimental aircraft, cannot be classed as an aircraft constructional establishment in the commercial sense of the words, but exists rather as an experimental establishment for the investigation of constructional problems peculiar to Australia and for the technical instruction of R.A.A.F. personnel.

THE FIRST AUSTRALIAN AEROPLANE.

The first Australian-built aeroplane was constructed by Mr. John Duigan, of Mia Mia, who in 1911 built and flew a biplane of his own design, more or less on Curtiss lines, fitted with a 35 h.p. Green engine. The skeleton of this machine is preserved in the Melbourne Museum as an example of Australian originality.

Mr. Duigan later came to England and learned to fly properly at Brooklands in April, 1912. After that he acquired an Avro with an E.N.V. engine, one of, if not the first, tractor biplanes with covered-in fuselage, the forerunner of the Avro 504K, and took it to Australia. Shortly afterwards the War broke out. He promptly joined the Australian Flying Corps, won a well-deserved Military Cross, was desperately wounded, made an excellent recovery, and is now living in peace, and one hopes in prosperity.

THE AUSTRALIAN AIRCRAFT AND ENGINEERING CO. LTD.

The first real attempt at aircraft construction however did not take place until after the War 1914-18. On June 19, 1919, Lieut. N. B. Love returned to Australia with the main body of the returning Australian Flying Corps on the transport *Kaisar-i-Hind* with the Australian agency for the products of A. V. Roe and Co. Ltd. He was joined later by Mr. H. E. Broadsmith, F.R.Ae.S., of the design staff of A. V. Roe and Co., and by Lieut. W. J. Warneford, late of No. 3 Sqdn., A.F.C., who took out from England 20 Avro 504K's and four demonstration machines with the immediate object of establishing aviation on a commercial basis in Australia.

This little band of three formed the Australian Aircraft and Engineering Co. In May, 1920, acquired workshops at Botany Road, Sydney, and proceeded to dispose of the imported machines in the open market. While this was being done, Mr. Broadsmith made a number of scientific investigations at the Sydney University to determine whether Australian timbers were suitable for aircraft construction, and as the result of his investigations the firm decided to enter the field of construction.

Soon after this decision was made, the company received an order from the Department of Defence for six Avro 504K

biplanes to be constructed to R.A.A.F. Specifications of Australian material.

The first of these machines was accepted on June 16, 1922, by Sqdn. Ldr. F. S. Barnwell, O.B.E., A.F.C., B.Sc., F.R.Ae.S., of the Technical Branch, R.A.A.F. (previously, and again subsequently, chief engineer of the Bristol Aeroplane Co. Ltd.) on behalf of the Air Board. This event was made the occasion of a little ceremony, attended by the Prime Minister, to celebrate the successful launching of the first Australian-built aeroplane. The remainder of this order was completed by the beginning of 1923.

In addition the company designed and constructed, to Mr. Broadsmith's design, an all-Australian six-seater commercial biplane, fitted with a 400 h.p. Liberty engine. But by the time the company had completed this machine and the Avro 504K order they found themselves threatened with an indefinite spell of inactivity. The commercial biplane was purchased by the Air Board, and shortly afterwards the A. A. and E. Co. was compelled to go into voluntary liquidation owing to the refusal of the Government even to guarantee any further orders either for complete aircraft or for re-conditioning existing equipment.

Thus the first and only real attempt to establish an Aircraft Industry in Australia suffered failure. The company undoubtedly undertook a too ambitious scheme at a time when the Australian Government was not in a position to give the firm adequate support.

THE EXPERIMENTAL SECTION, RANDWICK.

The Experimental Section, Randwick, was established on Jan. 14, 1924, under the command of Sqdn. Ldr. (now Wing Comm.) L. J. Wackett, D.F.C., A.F.C., B.Sc., A.F.R.Ae.S., R.A.A.F.

The first aircraft turned out by this establishment was the Wackett Warbler, a light aeroplane designed to compete in the 1924 Australian Light Aeroplane Competition. It was designed by Sqdn. Ldr. Wackett and was fitted with a 40 h.p. engine also designed by him. The machine was satisfactory, but the engine failed to develop the necessary and expected horse-power, and nothing further was heard of it after the conclusion of the competition.

The next product turned out by this establishment was the Wackett Widgeon, a tractor flying-boat, fitted with a 240 h.p. Siddeley Puma engine, and designed by Sqdn. Ldr. Wackett, who was assisted by Mr. H. E. Broadsmith, who on the failure of the Australian Aeroplane and Engineering Co. joined the R.A.A.F. Experimental Section as a civilian engineer.

As originally designed it was a pure flying-boat. The principal features of the machine are a wooden hull in which there is no plywood or glue, entire absence of tanks, fittings, pipes or bracing in the hull, interchangeable planes, struts and ailerons, all-metal wing ribs, a detachable land undercarriage for land handling and a 10-foot dinghy which formed the cowling on the rear half of the boat hull.

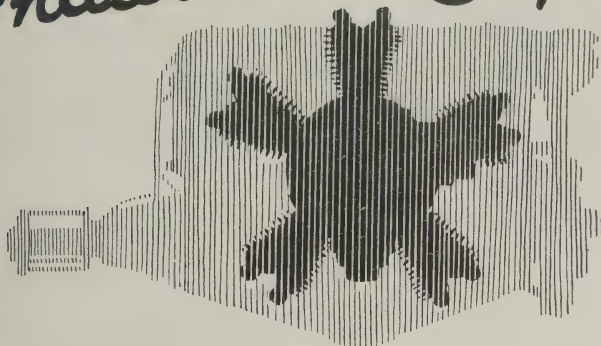
The hull is built up of two skins of $\frac{3}{8}$ in. Queensland maple, with varnished fabric between the two layers, the whole being fixed with copper rivets. The hull was built on



AN AUSTRALIAN EXPERIMENT.—The Wackett Widgeon (A.D.C. Nimbus engine), described on this page. The lack of clearance for the airscrew is noticeable.



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formers, which were afterwards removed and spruce longerons substituted. Two small open steps were afterwards built on.

The wings are built on two spars of solid spruce. The wing and tail-plane ribs are of 30 gauge rolled sheet brass, the leading edge is also of rolled sheet brass and the trailing of edge piano wire. The tail unit is all-metal with the exception of the tail-plane spars which are of solid spruce.

The engine, a Siddeley Puma, was mounted in advance of the main planes and was left uncowed, except for a tropical frontal radiator.

The main petrol tanks are mounted on the centre section, the petrol feed being entirely by gravity. The airscrew, 8 ft. in diameter, was made up of two two-bladed units of Queensland maple.

The dinghy was built up in the same manner as the hull, of Queensland maple. Although it was 10 ft. long and had a beam of 3 ft. 6 in., it weighed only 70 lbs. It was fitted with air tanks at both ends to make it unsinkable, and lockers for food, water, etc., were provided.

The first test, witnessed by a large number of important personages in Australian aviation, was a failure. The weather was unfavourable and on the first day only taxiing tests were made. On the second day in spite of similar weather conditions, Sqdn. Ldr. Wackett decided to try to take off so as not to disappoint the spectators.

With the Controller of Civil Aviation, Mr. Brinsmead, and two mechanics as passengers he opened up his engine, and while he was examining his instruments, the Widgeon hit a wave and the heavy swell lifted the machine off to a height of three feet from which it dived at an irrecoverable angle and stove in its bows. The machine was salvaged and returned to Randwick for repairs.

On April 12, 1926, it was submitted to further trials, this time piloted by Flt. Lt. McIntyre, C.B.E., A.F.C., and a satisfactory report was issued.

For these tests the tail had been enlarged and the position of the C.G. had been put further back.

The specification of the machine at the time of these trials was as follows:—

Span	39 ft. 3 in.	Useful load	680 lbs.
Length	29 ft. 9½ in.	Speed at sea level ...	103 m.p.h.
Length (folded)	34 ft. 6 in.	Speed at 2,000 ft.	95 m.p.h.
Width (folded)	15 ft. 10½ in.	Speed at 5,000 ft.	90 m.p.h.
Height (on wheels) ...	13 ft. 9½ in.	Speed at 6,500 ft.	86 m.p.h.
Height (off wheels) ...	13 ft. 5 in.	Climb to 1,000 ft.	2 mins.
Wing area	424.32 sq. ft.	Climb to 5,000 ft.	14.15 mins.
Wing loading ...	9.69 lbs./sq. ft.	Climb to 8,000 ft.	31.1 mins.
Power loading	15.26 lbs./h.p.	Service ceiling	9,000 ft.
Weight, empty	2,900 lbs.	Absolute ceiling	11,000 ft.
Weight, fuel	379.9 lbs.		

Later in 1926, the Widgeon underwent considerable modification, the most important of which was its conversion into an amphibian. Other alterations included the substitution of an A.D.C. Nimbus engine for the Puma, the engine position moved back 6 ins., the bow lightened, tail, elevator and rudder areas almost doubled, dihedral angle increased from 3½ to 5 degrees, pilot's cockpit, control system and petrol feed altered, and a single four-bladed airscrew of larger diameter fitted, this latter alteration making it necessary to cut a small trough in the deck to allow for clearance.

So far the Widgeon has not been flown in this condition. Sqdn. Ldr. Wackett is at present engaged on the design of two training machines, one to be fitted with either a Bristol Lucifer or a Siddeley Lynx engine, and the other will be fitted with an engine designed by Sqdn. Leader Wackett.

Other Construction.

For the 1924 Light Aeroplane Competition a number of light aeroplanes were built but as these were produced in ordinary workshops, back yards, etc., and none of them were heard of again after the competition.

Late in 1925, a two-seater biplane, known as "Silver Wings" was designed, built, and in 1926, flown by Mr. George Mackenzie, of the Aircraft Manufacturing and Supply Co., of Geelong, Victoria, in whose workshops the construction was done under the supervision of Mr. P. J. Pratt.

It is fitted with a 70 h.p. 8-cylinder, air-cooled Renault engine. This engine is No. 3 of a series of three built by Messrs. Kelly and Lewis, Engineers, of Melbourne, during 1915-16 and used for training purposes at Point Cook.

It is a two-seater tractor biplane of normal appearance and construction and was built for private use only. In general appearance it resembles the Renault-engined S.E.5a, converted and used in this country by Dr. Whitehead Reid.

Its main dimensions are:—Span: 26 ft. 6 in.; length: 22 ft. 8 in.; chord: 6 ft.; approximate weight: 1,500 lbs. At 1,000 ft. it showed a cruising speed of 60 m.p.h. and it has an estimated top speed of 70 m.p.h.

In test flights made by Mr. C. D. Pratt, carrying Mr. Mackenzie as passenger, the machine flew very easily with hands off the controls, both in normal flight and gliding.

In the meantime, the Queensland and Northern Territory Aerial Services Ltd. and Western Australian Airways Ltd.

had adopted the D.H.50 for their air lines and both the companies acquired the licence to construct the D.H.50.

The first Australian-built D.H.50 was turned out by Quantas Co., the "launching" ceremony taking place Aug. 18, 1926, at Longreach. Her Excellency Lady Stonehaven baptised the machine "Iris."

With the exception of the engine and certain metal parts the "Iris" was constructed entirely of Australian material. The construction was undertaken partly as a spare time by the maintenance and repair staff of the air line, so six months were required to complete the machine.

Mr. W. A. Baird, of the Longreach Workshops, was in charge of the construction work and although the shops were not fully equipped for, and had not had previous experience of, the construction of aircraft, the total weight and performance of "Iris" compared very favourably with that of imported machines.

On her maiden trip, "Iris" carried Their Excellencies Lord and Lady Stonehaven from Charleville to Newcastle Waters, a distance of 1,200 miles.

In November, 1926, Western Australian Airways Ltd. completed and tested their first locally-built D.H.50 at Perth, W.A., and their first machine proved itself to be in every way up to the standard of imported machines.

Two further machines of the same type were produced early in 1927 and added to their fleet for regular air line work.

Contractors to the Government.

The following is a list of firms and individuals who have contracted to re-condition the R.A.A.F. gift equipment, although they cannot be classed as Aircraft Constructors. They undoubtedly form part of the Australian Aircraft Industry. G. H. Carman Proprietary Ltd., 639, Elizabeth Street, Melbourne.

Larkin Aircraft Supply Co. Ltd., 534, Collins Street, Melbourne.

Mort's Dock and Engineering Co. Ltd., Balmain, N.S.W. Aircraft Manufacturing and Supply Co. Ltd., Geelong (renamed Matthews Aviation, Melbourne).

Aero Engineering and Construction Co., Essendon. Shaw-Ross Engineering and Aviation Co., Melbourne.

New Ventures.

Early in 1927 the De Havilland Co. formed the De Havilland Aircraft Proprietary Ltd. at Little Collins Street, Melbourne, under the direction of Major Hereward Havilland, to act as agents for the firm, to run "service stations for Moth owners, and eventually to construct D.M. machines as occasion demands.

Also early in 1927 Mr. H. E. Broadsmith returned Australia to represent the Avro interests. And in 1926 Ldr. Esk Sandford had already arrived to represent Blackburn interests.—L. B.

The I.Ae.E. in Australia.

The Australasian Branch of the Institution of Aeronautical Engineers was founded by Capt. P. Roach-Pierson, Melbourne in the summer of 1924.

Despite the fact that there is practically no Aircraft Manufacturing Industry in Australia, and that those who are interested in aeronautical work are widely scattered over a vast territory, the Australasian Branch of the I.Ae.E. has shown a steadily increasing membership, and has maintained a sound financial position during its career.

At December 31st, 1926, the branch had 43 members and a credit balance of £70.

During the early part of 1927 a new branch of the Institution has been formed in New South Wales.

The Chairman of the Australasian Branch is Wing C. Wackett, D.F.C., A.F.C., B.Sc., and the Honorary Secretary is Capt. P. Roach-Pierson, of Normanby Chambers, 430, Little Collins Street, Melbourne.

ACKNOWLEDGMENTS AND APOLOGIES.

The compilation of information about Aviation in Australia has been a difficult task. Had it not been for the helpful assistance of the Australian Liaison Officer at the Air Ministry, the Publicity Department of the Office of the High Commissioner for Australia at Australia House and the exceedingly helpful information contained in the back numbers of *Aircraft* (the highly-informative monthly journal edited by Mr. E. J. Hart), the task would have been impossible.

To all these sources one tenders one's sincere thanks, and to the last one adds one's apologies for so ruthlessly lifting information without due acknowledgment.

To all those operators of aircraft in Australia who see this issue and consider that they have not been fairly treated, then remember that much-hackneyed phrase which says something about light under a bushel.

Tipping up bushels in search of light in England is hard enough, but when some 12,000 miles separate the searcher from the light then the task is impossible.

An archaeologist is said to be an individual who, on finding a tooth, builds a pre-historic animal to fit it. One is suggesting that Australia is like a pre-historic animal, somewhat the analogy seems to fit.—L. B.



THE IDEAL LIGHT AEROPLANE

The Widgeon III is a very strongly built and substantial light aeroplane and, unlike a good many machines at present on the market, there is nothing flimsy about it and it is particularly suitable for real hard work. The machine carries passenger, pilot and about 50 lbs. of luggage. The engine is the well-known Cirrus Mark II, or the Armstrong-Siddeley "Genet." Being a parasol monoplane there is a most excellent view for both pilot and passenger in a downward direction, making the machine ideal for patrol or survey work.

In addition the wings are braced with struts and consequently there is no chance whatever of the rigging getting out of true and needing skilled attention. The passenger's entrance is through a door in the side of the fuselage and he has a very roomy cockpit. The aeroplane can be supplied with or without dual control. The machine is economical to run, the petrol consumption being approximately 20 miles per gallon, and the oil consumption is about one pint per hour. The overall dimensions of the machine when folded are only 8 ft. 6 ins. high, 10 ft. 6 ins. wide, and 23 ft. 1 in. long.

ENQUIRIES SOLICITED.

Manufactured by the
WESTLAND AIRCRAFT WORKS,
 Branch of Petters Limited,
 YEovil, ENGLAND.



View of the easy entrance to the passenger's cockpit.

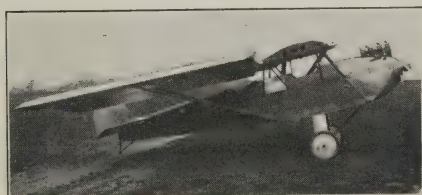


Illustration of the way in which the Wings fold back.



View of Engine Installation.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AUSTRALIAN FLYING CLUBS.

The success of the Light Aeroplane Club movement in England has led to the organisation of a similar movement in Australia, and for the short time that it has been in existence it has met with unqualified success.

Late in 1925 the Controller of Civil Aviation submitted to the Minister for Defence a strong recommendation that the Government should assist the formation of Light Aeroplane Sections, in Melbourne, Sydney and Brisbane, of the Australian Aero Club.

The Australian Aero Club, whose headquarters are in Melbourne, was founded at Point Cook in 1914 by the officers of the first course at the Central Flying School.

The memorandum prepared by the Controller was based on the British Air Ministry Scheme and embodied certain forms of Government assistance which he was prepared to recommend.

These included the free use of Government sheds and aerodromes; the loan by the Department of two D.H. Moths and two spare engines to each approved Club, with necessary spares for engines and machines; the Department to make a monetary grant in respect of each Club-trained member who shall qualify for a Private Pilot's Licence on Aircraft loaned by the Department to the Club.

The Victorian Section of the Australian Aero Club, which was selected as the operators of the Melbourne Flying Club, also prepared and submitted a proposal to the Controller, the essence of which was that it should give flying instruction to club pupils with the assistance of a pilot and ground engineer, whose salaries should be paid by the Club, and that the Government in addition to loaning the suggested equipment should pay the Club a bonus of £20 in respect of each qualified pilot so trained.

In November, 1925, the Minister of Defence approved of this scheme, and an order for four D.H. Moths was cabled to the De Havilland Company for immediate delivery.

Early in 1926 the Controller of Civil Aviation selected the N.S.W. branch of the Australian Aero Club as the approved flying club for Sydney, and loaned the Government aerodrome at Mascot to the Club.

In every case the various sections of the Australian Aero Club are responsible for the operation of the Flying Clubs.

The New South Wales Section.

The Sydney Flying Club was the first to begin operations. In view of the growth of the Club movement in England and elsewhere in the Empire it seems interesting to give here-with the charges instituted by this Club:—

Ordinary Members (without right to fly club machines), £1 1s. entrance fee, £1 1s. subscription.

Pilot Members (qualified pilots, with right to fly club machines), £3 5s. entrance fee, £3 5s. subscription.

Pupil Members (persons desirous of being taught to fly on club machines), £10 10s. entrance fee, £3 5s. subscription.

On a pupil obtaining his pilot's licence, and after the Club has received the Government grant for having trained him, the Club refunds £9 9s. of the entrance fee, less the cost of any damage done to the Club's equipment.

The charge for instruction or practice is £3 10s. per hour for dual instruction and £2 10s. per hour for solo flying.

On this basis it is estimated that an ordinary pupil could learn to fly for approximately £40.

The Club began operations on Aug. 2, 1926, with Mr. E. W. Leggatt, M.C., as instructor and Mr. R. E. Beeston as ground engineer.

The first six months' operations were purely experimental, and the results obtained during this period were very satisfactory. The demand for the facilities which the Club offered were such that the Committee in January, 1927, decided to have a third Moth and to employ an assistant instructor and an assistant ground engineer.

Mr. R. M. King was appointed to assist Mr. Leggatt. The charge for solo flying was also reduced from £2 10s. per hour to £1 10s. per hour.

Soon after its inauguration a fund was opened to provide for the possible purchase of new flying equipment and other necessities. By December, 1926, this fund stood at approximately £1,000, the bulk of which had been presented by prominent Sydney business houses.

A commodious Club house has been erected at Mascot, where meals may be obtained and members may dance and play tennis or clock golf as an alternative to flying.

Early in January, 1927, His Excellency Admiral Sir Dudley Rawson de Chair, K.C.V.O., M.V.O., the Governor of New South Wales, became Patron of the Club, which can be taken as an outward sign of the prestige which the Club has gained as an association with definite national objects.

Up to Dec. 31, 1926, the Club machines had made 1,405 flights, with a total of 440 hours 25 mins. flying time, of which 189 hours 10 mins. was dual instruction, 81 hours 45 mins. was pupils' solo flying and 143 hours 45 mins. was pilot members' flying.

In that period nine pupils had qualified for their pilot's licence, with an average of 8 hours 41 mins. dual and

6 hours 45 mins. solo flying, which latter figure includes flying time made during the actual licence tests.

The first pupil to go solo was Mr. G. McC. Littlejohn, who did so on Aug. 23 after 7½ hours' dual, only three weeks after the opening of the Club.

Another pupil, Mr. S. H. Arousseau, went solo on the following day.

Mr. Littlejohn took his "ticket" on October 13, and was the first Australian Club-trained pilot.

A fortnight after Mr. Littlejohn's success, the Civil Aviation Branch licensed a batch of eight pupils.

The Controller of Civil Aviation himself was flown to Sydney to supervise the examinations, and on his return Melbourne sent the following letter to the Club:—

With reference to the pupils who were recently presented by your Club for Private Pilot's Licences, I have to advise you that the report submitted by the examining officer is exceedingly satisfactory. It indicates that the flying instruction has been thoroughly and scientifically carried out. It is very gratifying to find that this state of affairs exists in the early stages of your operations, and foundations laid should do much to ensure not only continuance of success, but also an increase in the activities of your organisation.

The Larkin Aircraft Supply Co. Ltd. have undertaken to run a Flying School at Hay. They have purchased a D.H. Moth and by arrangement with the Department of Civil Aviation they will be granted a bonus of £50 for every pupil trained thereon.

The Victorian Section.

The Melbourne Club began operations with two Moths at Essendon aerodrome on Aug. 21, 1926. The official opening of the Club was performed by the Lieut.-Governor of Victoria, and was followed by a flying display provided by the R.A.A.F. and the Civil Aviation Branch.

The Club's first instructor was Lt. A. E. Mustard, D.F.C., who has since resigned in order to organise an air line to the New Guinea goldfields, and Mr. A. N. D. Pentle (late R.A.F.) has been appointed in his place. The ground engineer is Mr. J. Hart.

At the end of October a total of 140 hours, of which 100 hours was with, or by, pupils, and 35 hours by pilot members, had been put up on the Club Moths, in spite of rough weather, which made it possible to carry out dual instruction on only 12 days during October.

On Oct. 18 Messrs. Ashley and Mulcahy were granted their pilot's licences, and were thus the first Melbourne Section members to qualify on the Club Moths.

A Clubhouse has been erected at Essendon, and the parent body, the Victorian Section of the Australian Aero Club, have instituted a system of propaganda which includes broadcast talks on aviation from the Melbourne station (3 LO), and No figures are available as to recent activities.

The South Australian Section.

The South Australian Section of the Aero Club, which was formed in 1919 and died in 1920, was revived on Sept. 1926, at Adelaide.

A general meeting was held on Sept. 22, at which it was announced that the committee was about to enter into agreement with the Minister of Defence for the training of pupils on flying equipment to be loaned by the Department.

The loan of two D.H. Moths, with two spare Cirrus engines, together with shed and workshop accommodation at the Albert Park Aerodrome, has been approved.

It was expected that the flying equipment would have arrived from England in time to begin flying in March, 1927.

The Queensland Section.

The Queensland Section of the Aero Club which was formed in 1919 was reconstituted in 1926. The operation of the Flying Clubs under this section is being undertaken by the Queensland and Northern Territory Aerial Services Ltd. (Quantas), and two sections have been formed, one at Brisbane and one at Longreach.

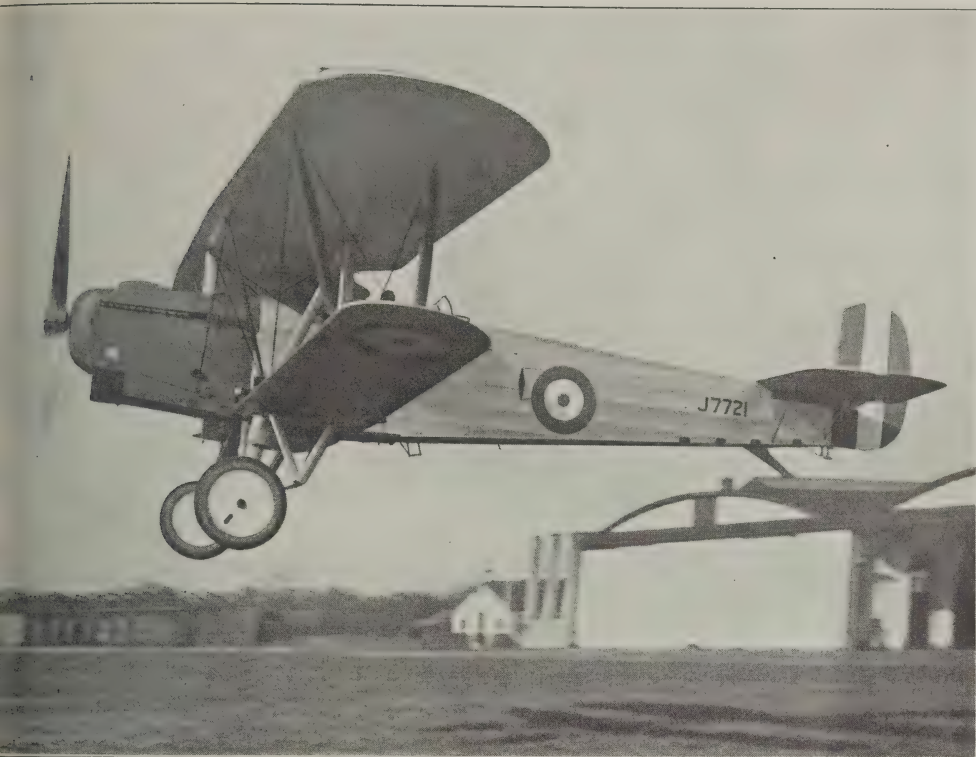
Instead of the equipment being loaned by the Department of Civil Aviation it is being purchased by the operating company, and instead of the subsidy of £20, which is paid by the Department in respect of each successful graduate who learns on loaned equipment, the sum of £50 will be given to the operating company for each pupil who qualifies.

The Quantas Company have purchased five D.H. Moths two of which are used at Brisbane, two at Longreach, and one is retained as a spare.

Two instructors, Mr. L. J. Brain, who has been piloting Quantas aircraft over the Charleville, Cloncurry, and Camooweal routes for three years, and Mr. C. C. Matheson, have been appointed by Quantas.

On Dec. 27, 1926, the Longreach School opened, with Mr. Matheson as instructor. The Moths used are the first of the type seen in Queensland and have excited much attention.

Flying starts at 05.30 hours, owing to the tropical heat



THE "HORSLEY."

"Flight" Photo.

The Hawker "Horsley" is the R.A.F. Standard Day Bomber. It is particularly suitable for Bombing, Coastal Defence and Reconnaissance Duties. Details can be supplied to Bona Fide applications from Colonial and Foreign Governments.

THE

H. G. HAWKER ENGINEERING CO., LTD.

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the midday hours. The first course consists of four pupils, and a second batch of four are on the waiting list.

During the remainder of December 9 hours 30 mins. dual instruction was given in the course of 24 flights.

During January, 1927, with five pupils, 15 hours 10 mins. dual instruction was given and 1 hour 55 mins. solo flying was done, which represented a mileage of 1,755 miles.

The Geelong Sub-section.

In August, 1926, the Geelong sub-section was successful in obtaining the promise of the loan of one D.H. Moth, with spares, and a bonus of £20 for each pupil trained on loaned equipment.

With this incentive the section enrolled over one hundred new members, and undertook to build by voluntary labour a shed 40 ft. by 50 ft. with materials given by public-spirited citizens. It has received more than twenty applications for flying tuition.

NOTABLE AUSTRALIAN FLIGHTS.

Hereafter follows a list of some of the more prominent flights made in Australia on other than A.F.C. or R.A.A.F. equipment since 1919.

Across Australia (2,400 miles).

In connection with the first flight to Australia made by Capt. Ross Smith, Lieut. Keith Smith, Sgt. Bennett and Sgt. Shiers on the Vickers Vimy biplane (two 360 h.p. Rolls-Royce Eagle engines). Capt. Wrigley and Sgt. Murphy arrived at Port Darwin on Dec. 13, 1919, after having flown from Melbourne on a B.E.2c. (90 h.p. R.A.A.F. engine). This was the first time that Australia was traversed in any direction by air.

Launceston—Melbourne.

On Dec. 17, 1919, Mr. A. L. Long, on a Boulton and Paul P.9 (90 h.p. Raf engine), flew from Launceston, Tasmania, to Melbourne in 6½ hours, this being the first flight across the Bass Strait.

Sydney—Bundaberg (800 miles).

In April, 1920, Mr. Bert Hinkler, the well-known Avro test pilot, while on a visit to Australia flew from Sydney to Bundaberg, his home town, on an Avro Baby biplane (35 h.p. Green engine), a distance of 800 miles non-stop in 9 hours. He landed in the main street and taxied to his father's door.

Melbourne—Perth (2,169 miles).

Between Nov. 30 and Dec. 2, 1920, Mr. F. S. Briggs and Mr. Degaris flew from Melbourne to Perth by way of Mildura, the Murray River valley, Adelaide and the Transcontinental Railway, a distance of 2,169 miles, in 18 hrs. 12 mins.' flying time, on a D.H.4 biplane (360 h.p. Rolls-Royce engine). This was the first time these two cities were united by air, and the time still stands as the fastest ever made over this route.

Melbourne—Longreach—Melbourne (2,200 miles).

Between Nov. 15 and Nov. 21, 1922, Lieut.-Col. Brinsmead, Controller of Civil Aviation, accompanied by Capt. E. J. Jones, M.C., A.F.C. (pilot), Superintendent of Flying Operations, and Mr. R. H. Buchanan, Assistant Superintendent of Aircraft, flew from Melbourne to Longreach and back in the Departmental Bristol Tourer (240 h.p. Siddeley Puma engine), a distance of 2,200 miles, to discuss urgent business with the contractors of the newly-opened Charleville—Cloncurry air route.

Round Australia (7,658 miles).

Between Aug. 7 and Aug. 29, 1924, Lieut.-Col. Brinsmead, Controller of Civil Aviation, accompanied by Capt. E. J. Jones, M.C., A.F.C., Superintendent of Flying Operations, and Aircraft Inspector R. H. Buchanan flew round Australia on a Departmental D.H.50a (240 h.p. Siddeley Puma engine) to test the efficiency of the D.H.50a on long distance cross-country work in various climates, to inspect the progress made in the preparation of aerodromes and landing grounds on certain air routes, and to conduct a preliminary survey of possible air routes connecting Darwin, the proposed terminus of the England—Australia airship route, with the existing air lines.

The whole flight was made in 22 consecutive days, 35 landings were made and the whole distance of 7,658 miles was covered in 87 hrs. 45 mins. without any trouble whatever. To have undertaken a similar journey by any other method would have occupied several months of discomfort and hardship.

Melbourne—Normanton—Melbourne (3,320 miles).

Between Dec. 1 and Dec. 6, 1925, Lieut.-Col. Brinsmead, Controller of Civil Aviation, accompanied by Capt. E. J. Jones, M.C., A.F.C. (pilot), and Mr. O. H. Howard

Pending the delivery of equipment, the organising committee have been indulging in propaganda by means of lectures, etc.

The Western Australian Section.

A flying club in Perth was opened in April, 1927, by Western Australian Airways Ltd.

As in the case of the Queensland Section of the Club, the Western Australian Flying School will be conducted with machines not loaned by the Government, the latter making a grant of £50 for each qualified pupil to the operating company instead of the £20 per pupil payable to those sections operating on borrowed equipment.

With the exception of the New South Wales and the Victorian Sections, both of which have accomplished much useful work in their comparatively short lives, the Flying Club sections of the Australian Aero Club can only be said to be starting operations on an experimental basis. That their movement will succeed is a foregone conclusion.

flew from Melbourne to Normanton, on the Gulf of Carpentaria, and back on a Departmental D.H.50a (240 h.p. Siddeley Puma engine) on a tour of inspection of the Quantas route and a survey of a possible extension of this service northward to Normanton. The return journey (1,660 miles) was made in two days. The total mileage of 3,320 miles was completed in 37 hrs. 25 mins.' flying time.

Melbourne—Darwin—Melbourne (4,605 miles).

Between July 25 and Aug. 11, 1926, Lieut.-Col. Brinsmead, Controller of Civil Aviation, Capt. E. J. Jones, Deputy Controller, and Inspector Howard flew from Melbourne to Darwin and back in the Departmental D.H.50a (240 h.p. Siddeley Puma engine) to meet Mr. (now Sir) Alan Cobham on his arrival in Australia.

Capt. Jones was pilot, and flying on consecutive days the reached Darwin, 2,142 miles, in 26 hrs. 30 mins.' flying time. After a six days' stay in Darwin they returned to Melbourne covering the 2,463 miles in 30 hrs. 45 mins.' flying time making a total distance of 4,605 miles, which was covered in 18 stages and 57 hrs. 15 mins.' flying time.

Longreach—Melbourne (1,115 miles).

On Oct. 22, 1926, Capt. E. C. Johnston, Superintendent of Aerodromes, Civil Aviation Branch, accompanied by Lieut.-Col. J. J. Davies, R.A.A.F., while engaged on a tour of inspection flew from Longreach to Melbourne, 1,115 miles, in 10 hrs. flying time on the D.H.37 (Rolls-Royce Falcon engine)—"Silvia's" sister—belonging to the Air Board.

He left Longreach at 04.50 hrs. and after stops at Charleville, Bourke and Hay reached Essendon aerodrome, Melbourne, at 18.10 hrs. This is the longest one-day flight yet made in Australia.

Perth—Sydney (2,300 miles).

Between Jan. 28 and Jan. 31, 1927, Messrs. Kingsford Smith and Keith Anderson, both pilots employed by Western Australian Airways Ltd., flew from Perth to Sydney on two Bristol Tourers (240 h.p. Siddeley Puma engines), which have been sold, after four years' service on the Perth—Darwin route, to a concern for use in the New Guinea goldfields.

They flew by way of Narentha, Cook, Wirraminna, Broken Hill and Parkes and covered the entire distance against strong head winds in 30 flying hours.

Perth—Melbourne (2,200 miles).

Between Feb. 7 and Feb. 24, 1927, Major Hereward de Havilland, D.S.O., flew from Perth to Melbourne, roughly 2,200 miles, on a D.H. Moth (37/60 h.p. A.D.C. Cirrus engine). He flew by way of Kalgoorlie, the great Victoria Desert, Port Augusta, and Adelaide and covered the entire distance at an average speed of 70 m.p.h.

AVIATION INSURANCE IN AUSTRALIA.

The remarkable success which characterises the operation of Aerial transport in Australia has claimed the attention of the British Aviation Insurance Group.

The Group has appointed the well-known Australian Insurance firm of Bennie S. Cohen and Son Pty. Ltd., of Collins Court, Melbourne, which has branches in every capital city in the Commonwealth, as its representatives. This company began issuing aviation policies on Jan. 1, 1927.

These policies cover aircraft, passengers and freight on all the subsidised air lines in Australia.

The rate for passenger aircraft is 1s. per cent. per 100 miles, or, with weekly benefits, 1s. 6d. per 100 miles or part thereof. Cargo is insured either from take-off to landing at 9d. per cent. per 100 miles or from domicile to domicile if within 15 miles of aerodrome of departure and arrival at 1s. 9d. per cent. per 100 miles.

Zurich to Cape on SHELL Oil and Petrol

*Famous Swiss Pilot's
Trans - Continental
Flight.*



Lieut. Mittelholzer, one of the leading Swiss Pilots, recently completed a long flight from Zurich to Cape Town, flying a "Dornier" Seaplane, for over 12,000 miles.

*Throughout the whole flight
Lieut. Mittelholzer used Shell Oil
and straight Shell Aviation Spirit
(unmixed with any other fuel).*

From the pioneer days of Flying the world's great airmen have chosen Shell—for speed—for endurance—for reliability—in all conditions and every clime.





A MOTH FOR GERMANY.—The De Havilland Moth (Cirrus engine) presented by Herr Karl Bercowitz to the Deutscher Sportflieger Klub.

DE HAVILLAND SERVICE IN AUSTRALIA.

From the information which will be found disseminated through this issue of *THE AEROPLANE*, the careful reader will have gathered that de Havilland aircraft are playing a very important part in Australian Civil Aviation.

The D.H.50A is in use on the services of Western Australian Airways, of the Queensland and Northern Territories Aerial Services Ltd., and of the Larkin Aircraft Supply Co. Machines of the same type are in use by the Royal Australian Air Force, and by the Department of Civil Aviation—one of them being used specially for the service of the Governor-General, Lord Stonehaven. In addition to D.H.50s, the Department of Civil Aviation owns one D.H.37 and the R.A.A.F. a number of D.H.53 light aeroplanes.

There are also twenty-five D.H. Moths in Australia at the moment. Twelve of these belong to the various Australian Flying Clubs, five to Q.A.N.T.A.S., two to Western Australian Airways, one to the R.A.A.F., one to the Controller of Civil Aviation, one to the Larkin Aircraft Supply Co., one to the *Sun* newspaper of Melbourne, and one to Major Hereward de Havilland.

It has often been remarked that Australia affords enormous opportunities for civilian flying, and it seems to be imagined in some quarters that there ought to be some sort of spontaneous generation of Civil Aviation in that country. It has however been recognised by the de Havilland Aircraft Co. Ltd. that flying, at any rate flying by private owners on business, requires a proper organisation for service. There is very little doubt that the British motor-car has suffered in the British Dominions quite as much from the fact that there is no proper service organisation comparable to that invariably provided for the owners of American motor-cars as from any other cause. The de Havilland Company have taken steps to see that their aircraft do not suffer in this way in Australia.

They have accordingly formed de Havilland Aircraft (Proprietary) Ltd., with Major Hereward de Havilland as Managing Director, to act as their Australian Agency. At present this firm imports Moths into Australia in the form of completely dissembled components, which can either be built up into complete Moths for sale, or used as spare parts for repairs and maintenance.

As time goes on it is probable that more and more components will be made in Australia, and an actual manufacturing business built up. The rate of development of this side of the business will naturally depend on the growth of the Australian market and other local conditions.

In addition to this the firm has a service station for repairs

and maintenance at the headquarters of each of the Australian Flying Clubs, that is to say at Perth, Brisbane, Longreach, Sydney, Melbourne, Adelaide and Hay. These stations may be said to cover effectively all the reasonably populated districts of Australia.

As a result any would-be Australian owner of a Moth enabled to take delivery of his machine fully erected, tested and filled with petrol and oil at a properly equipped aerodrome. And he will almost always have within easy reach of his home station a depot from which he can obtain spare parts and the attention of skilled mechanics.

In addition to this service organisation, Western Australian Airways and Q.A.N.T.A.S. have been taken up distributing agencies for Moths in the territories served by their respective air lines. Purchasers of machines from these agencies will naturally have the benefit of knowledge and experience of aircraft operation possessed by these firms to help them in any difficulty of supply etc. that may arise.

This extremely enterprising organisation cannot but do much to spread the use of civil aircraft throughout Australia, and the de Havilland Aircraft Co. thoroughly deserves the very large share of the Australian market for aircraft which they have already gained.—W. H. S.

THE FLIGHT ROUND THE ATLANTIC SUSPENDED

On April 5 the Marchese de Pinedo flew from San Antonio, Texas, to Hot Springs, New Mexico.

On April 6 he flew from Hot Springs to Roosevelt Dam near Phoenix, Arizona. While the Savoia 55 was being refuelled here it suddenly burst into flames and was totally destroyed.

It was later discovered that the accident was caused by youth in a boat who dropped a lighted match on the petrol-covered water of the lake.

A new machine of the same type has been prepared at the Savoia factory, and this will be despatched to New York on April 25.

The U.S. Government has, in the meantime, offered a U.S. Air Corps aeroplane to the Marchese de Pinedo with which to complete his flight in the United States, and it has been stated that this offer has been accepted.

[All good aviators will sympathise deeply with the Marchese de Pinedo in his bitter disappointment. He will in due course complete his triumphal progress, and his reputation as the World's greatest aviator will be sustained. But one feels sure that he himself will feel deeply the loss of the ship which has carried him so well over so many perils.]

C. G. G.]

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ON THE LION'S SHARE.

The original ideas for the design of the Napier Lion aero engines were evolved as long ago as 1916 by the firm of Napier and Son Ltd., but owing to the pressure of urgent production work for war purposes it was not until 1918 that the first engine of the type was produced. But since then it has done more than its share of pushing forward the progress of aviation all over the World.

The general arrangement of the Lion engine with its three rows of four cylinders, each arranged fanwise above a common crankshaft presented obvious advantages over any existing type of aero-engine. It gave the steady turning moment and the power output of the normal twelve-cylinder Vee-type engine with a greatly reduced overall length, which allowed the use of a short stiff crank-shaft and crank-case and made an unusually compact engine.

Had the Lion been of a well-known and tried general type the very rapid success which attended its introduction would have been remarkable. Considering that it was of an entirely unconventional arrangement, this success can only be regarded as phenomenal. It indicates the high degree of skill and knowledge which must have gone to its design and manufacture.

In the nine years since then the Napier Lion has proved itself to be in a class by itself. It is an engine which has shown itself able to compete successfully with any existing aero-engine of its own power in any and every class of aeroplane. It has been used in military aircraft of all types—from the high performance single-seater to the largest of bombers, in commercial aeroplanes and in big flying-boats, and in racing and record-breaking machines. And in all these varied classes it has proved itself to be not merely a good engine but an engine of surpassing merit.

Although the Napier Lion is entirely British-built, from British designs and of British materials, its range of achievement and its reputation are International. There can be very few countries in the World with any notable record of aerial activity which have not used Napier Lion engines.

In quite a number of cases the Napier Lion has been chosen in preference to quite good engines produced by their own national industry for great flights undertaken by the aer Services of Foreign Powers.

The Lion engine is probably more widely used by the Royal Air Force than any other engine. Four of these engines were used on the Service flight from Cairo to Cape Town and back to England last year. In this flight four engines covered a total engine mileage of 56,000 without even top overhaul.

Four more, two on each machine, were used by the two Supermarine Southampton flying-boats which flew from

Plymouth to Alexandria and back—a total of 27,600 engine miles. And again four Lions were used on a flight by two Vickers Virginia troop-carriers from Cairo to Aden and back—18,000 engine miles. On none of these flights was any mechanical trouble with the Lion engines encountered.

Also Napier Lion engines are fitted to the flight of Fairey IIIIFs, which is now on its way from Cairo to Cape Town.

In British commercial service the Napier Lion has an equally striking record of reliability. Imperial Airways Ltd. have twenty of these engines in their service, which between them have flown a total of 2,500,000 miles.

The British speed record, 226.75 miles per hour, was made by the Supermarine S.4 with a Napier Lion engine. The Schneider Trophy Contest of 1922 was won by another Supermarine seaplane with a Napier Lion engine. And the last three races for the Aerial Derby were all won by Napier-engined aircraft built by the Gloucestershire Aircraft Co. Ltd.

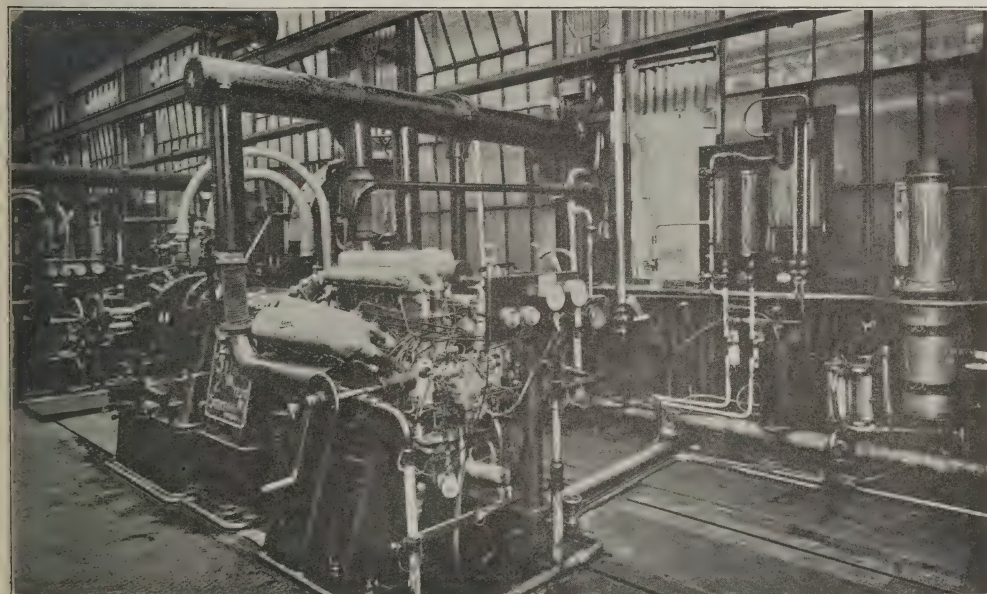
Of the great performances made by the Napier Lion in foreign aircraft only a few can here be recalled. Among the more noteworthy of these are the flight by Commandante Franco from Spain to the Argentine, 6,259 miles in 59½ hours' flying time, including the crossing of the South Atlantic (14,000 miles), and Major Zanni's flight from Amsterdam to Tokyo in twenty-two flying days.

Equally noteworthy was the winning of the German seaplane trials last year by the Napier-engined Heinkel seaplane. Of seventeen competitors this was the only one equipped with this engine. This same machine has recently made two World's records, for altitude carrying 500 and 10,000 k.g., respectively of useful load.

The main characteristics of the standard type of Napier Lion engine are given in the following specification. The very low weight per h.p. (under 2 lbs.) should be specially noted. The engine is also built without a reduction gear, and in this case an even better power-to-weight ratio can be obtained.

SPECIFICATION.

Cylinders, 12 in 3 blocks of 4 each ... 1 vertical, 2 at 60°	Starter ... Petrol priming system and hand turning gear
Bore and Stroke 5½ in. by 5¼ in.	Weight of engine dry ... 940 lbs. (approx.)
Horse-power ... 450 at 2,000 r.p.m. (normal)	Weight per horse-power developed Under 2 lbs.
B.H.P. at maximum permissible revs. 502	Length overall to centre of airscrew boss ... 4 ft. 9 in. (approx.)
Compression ratio 5.8 to 1	Height overall ... 3 ft. (approx.)
Speed of airscrew shaft 1,320 r.p.m.	
Oil Consumption, average 0.0235 lbs. per B.H.P. hour	



IN THE LION'S DEN.—A Napier Lion on the Test Bench, coupled to a hydraulic dynamometer. On the wall to the right are the various flow-meters. Over the engine is the water-cooled exhaust-pipe. And above it is the travelling crane, which puts the engines to bed, or pulls them out.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE ROYAL AIR FORCE.

The London Gazette.

Apr. 5.

GENERAL DUTIES BRANCH.—M. Fountain-Barber is granted a S.S. comm. as a Plt. Off. on probation with effect from and with seniority of Apr. 2; Lt. D. F. W. Atcherley, E. Lancs. Regt., is granted a temp. comm. as a Flg. Off. on seconding for four years' duty with the R.A.F. (Mar. 19).

The following Plt. Offs. are promoted to the rank of Flg. Off.:—J. C. H. Tavendale (June 17, 1926); A. H. Montgomery (Dec. 16, 1926); A. V. Hammond (Jan. 30); A. J. L. Hughes (Feb. 13); J. C. Lewis (Feb. 18); A. P. Wayte (Mar. 5).

Plt. Off. on probation F. H. Bailey is confirmed in rank (Mar. 15).

Wing Cdr. J. T. Babington, D.S.O., is placed on half-pay, scale B, Mar. 9 to 26, inclusive. (Substituted for the notification in the Gazette of Mar. 22.)

Flg. Off. R. F. Casey, D.F.C., is placed on the retired list at his own request (Apr. 2); Flg. Off. W. C. Ward is placed on the retired list on account of ill-health (Apr. 6); Flg. Off. L. F. T. Price resigns his S.S. comm. (Apr. 6); Sq. Ldr. A. A. L. Miller (Lt.-Cdr., R.N.) relinquishes his temp. comm. on return to Naval duty (Mar. 31); E. H. P. Slessor, Lt., R.N., Flg. Off., R.A.F., relinquishes his temp. comm. on return to Naval duty (Apr. 3).

STORES BRANCH.—Flg. Off. G. F. P. Warren is granted a perm. comm. with effect from June 26, 1926, on completion of his probationary service.

The following Plt. Offs. are promoted to the rank of Flg. Off. (Mar. 10):—E. G. M. Charleson, L. Taylor.

Flt. Lt. C. Y. Mitchell is placed on the retired list on account of ill-health (Apr. 6).

MEDICAL BRANCH.—Flt. Lt. J. G. Skeet relinquishes his temp. comm. on completion of service (Mar. 15).

RESERVE OF AIR FORCE OFFICERS.—The following are granted comm. in Class A.A., General Duties Branch, as Plt. Offs. on probation:—D. R. Fremantle, O. F. Maclaren, L. R. Stooke (Mar. 21); B. J. A. Webb (Mar. 22).

The following Plt. Offs. are promoted to the rank of Flg. Off.:—J. A. Lincoln (Mar. 21); L. R. Winter (Mar. 21); H. C. Barrett (Mar. 28); H. Wood (Mar. 30). The following Flg. Offs. are transferred from Class A to Class C:—R. S. Carroll, A.F.C. (Jan. 25); G. Richardson (Apr. 5).

The following relinquish their comm. on completion of service:—Flg. Off. H. L. Miller (Mar. 11); Flg. Off. L. D. P. Joseph (Mar. 18); Flt. Lt. M. J. Cahaly, M.B. (Apr. 4).

The notification in the Gazette of Mar. 22 concerning Plt. Off. V. P. Field is cancelled and that in the Gazette of Mar. 8 stands.

PRINCESS MARV'S R.A.F. NURSING SERVICE.—Mrs. L. L. Mackenzie resigns her appointment as Sister (Mar. 16).

Appointments.

Week ending Apr. 11.

GENERAL DUTIES BRANCH.—Squadron Leader G. R. A. Deacon, M.C., to No. 13 Sqn., Andover, 3/4.

Flying Lieutenants D. Gilley, D.F.C., and H. K. Goode, D.S.O., D.F.C., to No. 8 Sqn., Aden, 1/3. W. A. K. Dalzell, to R.A.F. Cadet College, Cranwell, 4/4. L. Darvall, M.C., to No. 2 F.T.S., Digby, 4/4. C. A. Hoy, M.C., to A. and A.E.E., Martlesham Heath, 8/4. N. Keeble, D.S.C., D.F.C., to R.A.F. Depot, Uxbridge, 7/4. D. D'A. A. Greig, D.F.C., to H.Q., Fighting Area, Uxbridge, 11/4. W. E. Purdin, to School of Photography, Farnborough, 11/4.

Flying Officers V. Rees, to M.A.E.E., Felixstowe, 4/4. J. H. Slater, M.B.E., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 17/3. R. A. A. Cole, to Heliopolis Details, 9/3. F. W. Moxham and G. N. J. Stanley-Turner, to No. 8 Sqn., Aden, 1/3. C. H. A. Farnan, to No. 2 F.T.S., Digby, 4/4. J. A. Mollison, to No. 5 F.T.S., Sealand, 4/4. F. C. Jennings, to R.A.F. Base, Gosport, 4/4. H. T. R. Gripps, to No. 1 F.T.S., Netheravon, 4/4.

Pilot Officers G. A. Underdown, to No. 16 Sqn., Old Sarum, 23/3. E. F. Wain, to No. 16 Sqn., Old Sarum, 2/4. J. R. Mutch, to No. 4 Sqn., Farnborough, on appointment to a Perm. Comm. from Cadet College, 11/3. H. G. Wheeler, to No. 100 Sqn., Spittlegate, on appointment to a Perm. Comm. from Cadet College, 15/3. A. W. L. C. Allen, to No. 5 F.T.S., Sealand, 6/4. K. Garston-Jones, to No. 111 Sqn., Duxford, 8/4. M. Fountain-Barber, to No. 5 F.T.S., Sealand, on appointment to a S.S. Comm. (on probation), 2/4.

MEDICAL BRANCH.—Squadron Leader R. H. Knowles, M.D., D.P.H., to Palestine General Hospital, 21/3. P. M. Keene, D.P.H., to R.A.F. Depot, Uxbridge, 1/4.

Flying Lieutenants T. J. X. Canton, M.B., to R.A.F. Base, Calshot, 12/4. J. Parry-Evans, to H.O., Egypt, 10/3. L. C. Palmer-Jones, to No. 208 Sqn., Egypt, 25/3. D. B. Smith, M.B., to Station Commandant, Basrah, 5/3.

Flying Officers J. McMillan, Wilder, to R.A.F. British Hospital, 'Iraq, 1/3. A. L. St. A. McCloskey, to Home Aircraft Depot, Henlow, 7/4. R. Thorpe and E. J. T. McWeeney, M.B., to R.A.F. Depot, Uxbridge, 4/4. P. D. Barling, M.B., to No. 8 Sqn., Aden, 1/3.

STORES BRANCH.—Wing Commander W. R. Bruce, O.B.E., to No. 4 Stores Depot, Ickenham, 20/3.

Flying Officers R. Bassett, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 14/3. C. N. Scott, to No. 8 Sqn., Aden, 1/3.

The Service African Flight.

The R.A.F. Flight under Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., which is flying from Cairo to the Cape, arrived at Kisumu on Apr. 4, from Mongalia. The four machines of the South African Air Force arrived at Kisumu on Apr. 5.

The two flights arrived together at Nairobi on Apr. 6 and were welcomed by the Colonial Secretary. An aileron on one of the S.A.A.F. machines was slightly damaged in a storm at Kisumu.

On Apr. 7 the R.A.F. Flight co-operated with the military ground forces at Nairobi.

Both flights left Nairobi for Tabora on Apr. 10.

A Squadron for China.

It is officially announced that No. 2 (Army Co-operation) Squadron, R.A.F., is under orders for China.

No. 2 (Army Co-operation) Squadron is stationed at Mantou, in Kent, and is equipped with Bristol Fighters.

The Unit is commanded by Sq. Ldr. William Sowre D.F.C., A.F.C. The personnel of the Squadron will sail from Southampton on Apr. 20 in s.s. *Neuralia*. The machines are being despatched by a different route.

No 8 (Bombing) Squadron.

According to R.A.F. Intelligence No. 712 (Appointment No. 8 (Bombing) Squadron has moved to Aden from Hinal.

No. 8 (Bombing) Squadron is equipped with D.H. machines and is under the command of Sq. Ldr. W. McLaughry, D.S.O., M.C., D.F.C.

R.A.F. SPORTS AND PASTIMES.

Inter-Services Cross Country.

The Army won the Inter-Services Cross-Country Championship at Fort Widley on April 7 with 26 points. The R.A. were second with 56 points and the R.N. and R.M. third with 117 points. A.C. Turner (Uxbridge) finished fourth with 35 mins. 31 secs. and A.C. Johnson (Lee-on-Solent) sixth with 36 mins. 17 secs.

Association Football.

R.A.F. v. *Corinthians*.—The R.A.F. team were beaten by the *Corinthians* at the Crystal Palace on April 9 by eight goals to four. The R.A.F. held their own until half-time when the *Corinthians* were leading only by four goals, three. In the second half the weakness of the R.A.F. defence lost them the game.

THE JUNIOR ASSOCIATION CUP.

No. 23 (Fighter) Sqn., Kenley v. Coastal Area Storage Unit, Tangmere.—The final of the Junior Cup Competition of the R.A.F. Football Association was played at Uxbridge, Apr. 6 and resulted in a win for the Coastal Area Storage Unit, Tangmere, by two goals to one.

The Junior Challenge Cup is for all stations or Units for forming part of a station in the Regular Air Force (at home) with an establishment of 200 or less. The Storage Unit at Tangmere is being disbanded and one understands that the winning team was drawn from a total strength of 25. The team have already beaten, in previous rounds of the Competition, the School of Naval Co-operation, Lee-on-Sole 2-1, the School of Balloon Training, Larkhill, 8-1, No. 5 Squadron, Netheravon, 3-1, and the C.F.S., Wittering, 5-1. This is an exceptionally fine record for so small a Unit.

After the match the Cup was presented to the winning team by Air Vice-Marshal H. R. M. Brooke-Popham, C.M.G., D.S.O., A.F.C.

Tangmere started the scoring with a goal from a penalty for hand in front of the goal posts. No. 23 Squadron retaliated with a fine attack on the Tangmere goal, but the Tangmere backs were v sound and Sgt. Davis, in goal, was quick and unperturbed. No. 23 Squadron put in some fast work on the left wing, but they were driven to a corner. Tangmere attacked again and A.C. Sambrook, Tangmere Captain, made a brilliant run down the wing, defeat three of the opposition and shooting from far out. The goalkeeper felled but failed to clear and the ball hit one of the defence side and went into the net.

In the second half Tangmere had the sun in their eyes and went continually on the defensive. No. 23 Squadron showed improvement, but a complete inability to shoot straight. After a tained attack of about half-an-hour, in the course of which the supporters implored them by megaphone and in chorus to aim at middle goal, they managed to score. The last quarter-of-an-hour consisted of a desperate endeavour by Tangmere to save the match. incidentally the Cup. The backs put an exceptionally strong defence which held to the end.—C. M. MCA.

The teams were:—Tangmere: Goal, Sgt. M. O. Davis; backs, L. Parham, L.A.C. Reddon; halves, A.C. Piper, Cpl. Geoghan, A.C. Hoin forwards, L.A.C. Shepherd, A.C. Toose, A.C. Jackson, A.C. Sercon A.C. Sambrook.

No. 23 Squadron: Goal, A.C. Laker; backs, A.C. Cobbold, Dunston; halves, A.C. Hendry, L.A.C. Thomas, Plt. Off. P. W. forwards, L.A.C. Lane, A.C. Clint, L.A.C. Cadger, A.C. Young, Walsh.

R.A.F. Golf.

The Spring Meeting of the R.A.F. Officers' Golfing Association took place at Wentworth on Apr. 4, 5, and 6.

Flg. Off. G. R. Beamish won the championship of R.A.F. when he beat Sq. Ldr. A. Lees in the final round 9 holes and eight to play over 36 holes.

The final results were:—

Serving Officers' Championship.—Flg. Off. G. R. Beamish (Spittlegate) beat Sq. Ldr. A. Lees (Manston) by 9 and 8.

Scratch Medal Round.—Flg. Off. H. L. R. Gough, 74.

Senior Handicap.—Flg. Off. Gough, 74, 2-74; Flt. Lt. A. Ingr 85, 10-75; Flt. Lt. Greene, 85, 9-76.

Junior Handicap.—Flt. Lt. Powell, 91, 18-73; Flg. Off. Silves 90, 16-74.

Foursomes.—Flt. Lt. Craik and Flt. Lt. Powell, 83, 9-74.

Mixed Foursomes were won by Flt. Lt. Fawcus and Mrs. Fawcus, 181-74.

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THE FLYING CLUBS. The London Aeroplane Club.

[Sec. :—H. E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending Apr. 10.

Unfavourable weather interfered with flying. Total time 10 hrs. 45 mins.

Dual Instruction.—Miss O'Brien, W. Beckett, I. H. McClure, Capt. H. Spooner, A. C. Pearson. Solo Flying.—O. J. Tapper, W. Beckett, A. C. Pearson, M. L. Braumson, A. F. Wallace, R. Sanders Clark, Capt. H. Spooner, Miss O'Brien, E. D. Moss. Passenger Flights.—J. L. Goddard, Miss Mackintosh. Instructor.—Mr. S. L. F. St. Barbe has now resumed his duties as Pilot Instructor. During his four months' absence the De Havilland Aircraft Company Ltd. kindly allowed their pilot instructors to assist. The Club records its grateful thanks to the De Havilland Aircraft Company Ltd., and to their pilots, Messrs. A. S. White, C. D. Barnard and R. W. Reeve for their help.

[An unfortunate accident happened at Stag Lane aerodrome on Apr. 8 when the Hon. Lady Bailey was struck on the head by the aircraft of her Moth when she was starting it. The blow was a glancing one and Lady Bailey is stated to be making good progress in a nursing home. Her Moth is going to Bournemouth, as she hopes to be well enough to fly in the races. Everyone will hope to see this plucky lady completely restored to health and unmarked by the wound.—C. G. G.]

The Lancashire Aero Club.

[Sec. :—C. J. Wood, Windsor Bank, Chapel Street, Hyde, Cheshire.]

Report for week ending Apr. 9.

Flying time 33 hrs. 45 mins., made up as follows :—

Dual with Mr. Brown :—Messrs. Caldecott 1 hr. 55 mins., Ward 1 hr. 45 mins., Cohen 1 hr. 10 mins., Mulder 1 hr. 5 mins., Gerrard and Torres 50 mins. each, Hartley, Serck and Miss Emery 40 mins. each, Messrs. Nelson 30 mins., Anderson, Stonex, Haynes and Miss Baerlein 20 mins. each, Messrs. Michelson, Collinson, Ruddy and Fallon 15 mins. each, Heys 5 mins.

Solo :—Miss Brown 4 hrs., Messrs. Costa 2 hrs. 25 mins., Twemlow 2 hrs. 15 mins., Abdalla 2 hrs. 15 mins., Gattrell 45 mins., Birley 30 mins., Wade 20 mins., Forshaw 25 mins., Dickinson 20 mins., Goodfellow 10 mins., Lacayo 10 mins., Nelson 10 mins.

Joy-rides :—With Mr. Lacayo—Mr. F. Scholes 1 hr. 35 mins., Mrs. Lacayo 35 mins., Miss Granchain 10 mins. With Mr. Twemlow—Mr. Anderson 2 hrs. With Mr. Costa—Mr. Anderson 20 mins., Messrs. Dickinson, Gerrard and Abdalla 15 mins. With Mr. Brown—Mr. Scholes 10 mins., Mr. Castex 10 mins. With Mr. Cantrill—Mr. and Mrs. Westcott 10 mins. each. With Mr. Michelson—Miss Michelson 20 mins.

Test flights.—1 hr. 35 mins.

During the week Mr. Gattrell and Miss Brown completed their tests for the A Licence. Miss Brown is our first lady pilot to get her licence and has been putting up some very nice aerobatic displays lately—looping, rolling and generally throwing the aeroflights around with excellent judgment. She was entered by telegram for the Bournemouth Oaks as soon as she had passed her tests, but the entry has been refused by the Royal Aero Club as it was a day late. This is

a pity from every point of view, as Miss Brown goes to Austral with the All-England Ladies' Hockey Team at the end of the month and will therefore not be able to represent the Club at all this year.

Mr. Scholes will represent us in the Instructors' Races and Mr. Twemlow, the racing motor-cyclist, in the *Ab Initio Pupils' Race*.

With reference to Newcastle's recent congratulations to London, their record flying week, we believe London are now entitled to congratulations on another score, that of having done 1,000 hrs.' fly already during the second year of the Air Ministry agreement. According to the weekly figures published, the hours flown by the Clubs since July 31 last up to the beginning of this month are as follows :—London 1,051 hrs. 30 mins., Lancashire 724 hrs., Newcastle 597 hrs., Hampshire 333 hrs.; Yorkshire and the Midland cannot follow exactly as both have missed reporting on several weeks, both appear to be close together in pursuit of Hampshire.

We will join in friendly rivalry with Newcastle, who were runner up to London for the first year, in trying to beat that 82 hrs.' record always assuming that London don't go and push it up to 100 hrs. before we can get there!

The Newcastle-upon-Tyne Aero Club.

[Sec. :—A. H. Bell, Cramlington Aerodrome, Northumberland.]

Report for week ending Apr. 10.

Flying was possible only on Saturday, I.X. having been under repair until that date, and a strong gale blew all day on Sunday.

Total time 6 hrs. 5 mins. Dual 3 hrs. 15 mins. Solo 45 mins. "A" Pilots 1 hr. 45 mins. Joy-ride 5 mins. Test 15 mins.

The following members flew under instruction :—Mrs. Heslop, M. Twine, Mr. Hayton, Mr. Turnbull, Mr. H. Ellis. Mr. Turnbull was the only soloist. "A" Pilots : Mr. R. N. Thompson, Mr. W. Baxi, Ellis with Mr. Lawson, Mr. H. Ellis. Miss Parkin had a joy-ride with Mr. Parkinson.

Mr. R. H. McIntosh, flying an Imperial Airways D.H.50, called at the aerodrome on Thursday for petrol. His passenger was Mr. Bagin.

The Midland Aero Club.

[Sec. :—Gilbert Dennison, Villa Road, Handsworth, Birmingham.]

Report for week ending Apr. 8.

Owing to continuous rain and high winds, it has only been possible to do about 5 hrs.' flying. The following members had instructed with Mr. McDonough :—E. P. Lane, S. H. Smith, C. H. James, R. Jackson, and Messrs. R. L. Jackson and E. J. Brighton flew so the Club will be open throughout Easter.

The Yorkshire Aeroplane Club.

[Sec. :—J. F. Barnes, 39, Swan Arcade, Bradford.]

Report for week ending Apr. 3.

Flying time 8 hrs., consisting of 3 hrs. solo and 5 hrs.' du. In all twenty-eight flights were made. Messrs. Wood, Waym, Dawson, M. B. Lax, Mann and Norway flew solo and Messrs. Wils, A. K. Lax, Oglesby, Dawson, Batcock and D.D. Little had dual.

Capt. West, our pilot instructor, is leaving us to-morrow (Monday) and is going to Brough for his course of Reserve Training, on completion of which one understands he intends to join some flying concern, as a pilot. We wish to make known our d

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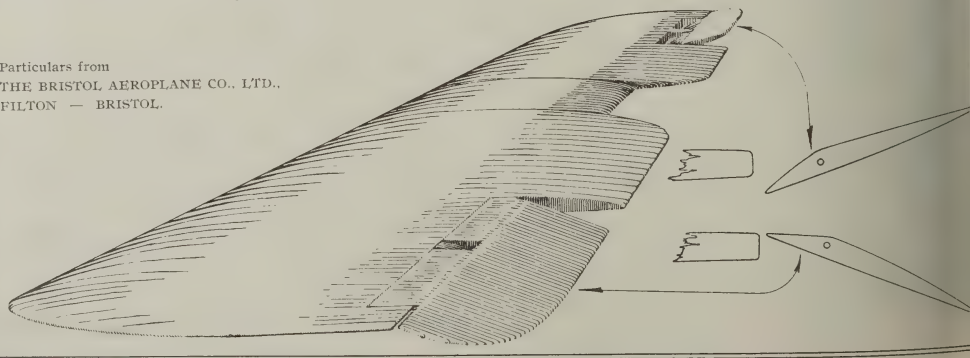
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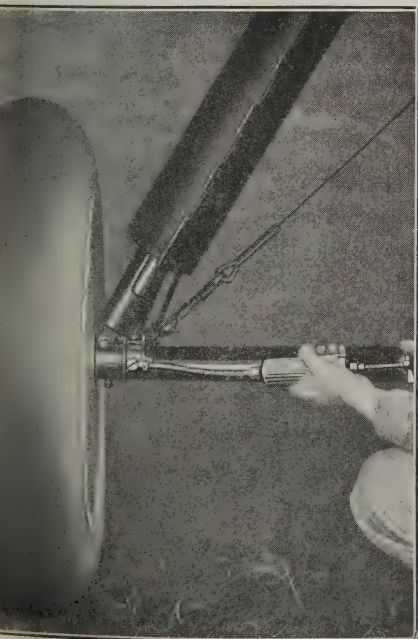
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appreciation of Capt. West's excellent capabilities as a pilot and instructor and our gratitude to him for his services, wishing him all success and good fortune in whatever he undertakes.

Mr. Beck, who is to take his place, is expected to arrive during the course of the week.

The Hampshire Aeroplane Club.

[Sec.:—A. N. Clifton, 49, Bugle Street, Southampton.]

Report for week ending Apr. 8.

In spite of the fact that the Club is now working with only one Moth, the flying time managed to reach the total of 9 hrs. 55 mins., made up as follows:—Instruction flying, 6 hrs. 20 mins. Solo flying, 3 hrs. 35 mins. Test flights, 20 mins.

The following members had instruction:—Lieut. Oliver, R.N., the Hon. H. R. Grosvenor, Messrs. Shepherd, Kerry, Everett, Stokes, Dobson, Clifton, Nicholson, Ash, Keeping, Dickson, Bowen, Courtney, Rumble, Farmer and Jayne.

The soloists were:—Don Juan de la Cierva 2 hrs. 10 mins., Lieut. Oliver 25 mins., Nicholson 15 mins., Ash 10 mins., Bowen 10 mins., and Keeping 5 mins.

Last week-end we received a visit from four members of the London Flying Club, namely, Mr. Kittell with Miss Davison in his Moth and Mr. Richardson with Mr. Brown in a Renault-Avro. They dropped in on their way to the Isle of Wight. These visitors lunched in Hamble.

Our first Chairman, Mr. O. E. Simmonds, who at the general meeting last week strenuously sought to be allowed to retire from the Committee after a year's most successful and arduous work, but who was at length persuaded to remain on the Committee, has now handed over the reins to his successor, Mr. R. J. Parrott, who was unanimously elected.

Mr. Parrott has devoted his interests to aviation ever since he joined Mr. A. V. Roe in the pioneer days, and he is now General Manager of the Hamble factory of A. V. Roe and Co.

The Pageant is developing into something even bigger than we had hoped and it will be a very valuable asset that Mr. Simmonds, who is Chairman of the Pageant Committee, can now devote the whole of his organising ability to Pageant affairs.

THE BOURNEMOUTH EASTER MEETING.

Forty-one pilots have entered for the various races at the Bournemouth Easter Meeting. The names of pilots and the machines which they will fly are as follows:—

Moths:—Mr. F. G. M. Sparks, Mr. G. I. Thomson, Mr. J. J. Scholes, The Hon. Lady Bailey, Capt. G. de Havilland, Mr. L. Le Roy Irwin, Capt. H. Spooner, Major K. M. Beaumont, Mr. C. Twenlow, Mr. H. S. Broad, Flt. Lt. S. L. G. Pope, Mr. G. Terrell, Mr. A. R. Ogston, Mr. A. R. Barnard, Mrs. J. R. Bell, Miss O'Brien, Flg. Off. J. Summers, Col. the Master of Sempill, Mr. O. J. Tapper, Mr. M. L. Bramson, and Mr. E. D. Moss.

S.E.5as.—Flg. Off. A. H. Wheeler, Mr. Dudley Watt, Mr. E. E. Stammers.

A.N.E.C.:—Mr. N. H. Jones.

Avro Avian:—Mr. Bert Hinkler, Mr. J. C. Cantrill, Flt. Lt. J. A. Gray, Wing Cdr. W. S. Douglas.

Avro 548:—Lt.-Col. G. L. P. Henderson, A. B. H. Youell.

Avro Lynx:—Flt. Lt. H. A. Hamersley.

Avro Gosport:—Major F. P. Scott.

Bristol Brownie:—Mr. G. H. Craig, Mr. F. G. M. Sparks, and Mr. M. L. Bramson.

Hawker Cygnet:—Flt. Lt. P. W. S. Bulman and Flg. Off. R. L. Ragg.

C.L.A.4:—Flt. Lt. N. Comper.

Westland Widgeon III:—Sq. Ldr. T. H. England, Mr. L. P. Openshaw.

Short Mussel:—J. L. Parker.

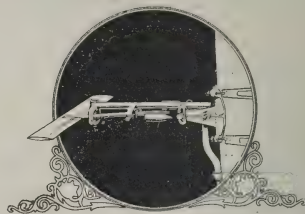
Blackburn Bluebird:—Sq. Ldr. W. H. Longton.

SUPERMARINE DEVELOPMENTS.

IN THE AEROPLANE of Jan. 26 there appeared the official notice of the registration of the Supermarine Aviation Works Ltd. with a capital of £300,000. This indicated the reconstruction, merely for purposes of commercial development, of the famous Supermarine Company.

The Chairman and Managing Director is Squadron-Commander James Bird, late R.N., to whose initiative and driving force the outstanding success of the Supermarine Company of late years has been due. The other Directors are:—Mr. M. J. Jarvis, who has for many years been Squadron-Commander Bird's personal solicitor and has also been the firm's solicitor for the last year or two; Mr. W. P. Roche, who has almost from the original formation of the Supermarine Works been connected with the firm as auditor and accountant in his capacity as partner in Price, Waterhouse and Co., the well-known accountants. Mr. R. J. Mitchell, who, as the firm's Chief Engineer has won for himself in the past few years recognition as one of the World's leading aircraft designers; and Mr. C. R. Gray, who has been the firm's Secretary for a considerable period.

With such a directorate the firm should undoubtedly continue to prosper exceedingly. The Southampton has proved itself to be the most efficient flying-boat of its power in the World and at the other end of the scale the firm's racing monoplane seaplane has proved itself to be the fastest machine of its class at any rate in England, so there is every reason to have confidence in the firm's future ability to enhance the reputation of British aircraft, and one hopes it will make an excellent profit for itself in doing so.



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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 11; Tuesday, 12; Wednesday, 12; Thursday, 13; Friday, 14; Saturday, 13; Sunday, 8.

IMPERIAL AIRWAYS LTD.:

Paris—London; London—Brussels—Cologne: Machines 35, passengers 290, freight 10 tons.

AIR UNION:

Paris—London: Machines 19, passengers 48, freight 1½ tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 14, passengers 57, freight 1½ tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 12, passengers 36.

PRIVATE:

Machines 3, passengers 4.

Total number of trips by British Machines, 38, carrying 294 passengers. Foreign Machines, 45, carrying 141 passengers.

Comparative Figures:

Week ending Apr. 10:

Machines, 83; Passengers, 435; Crews, 137; Total personnel, 572.

Corresponding week, 1926:

Machines, 104; Passengers, 513; Crews, 143; Total personnel, 656.

Corresponding week, 1925:

Machines, 98; Passengers, 422; Crews, 132; Total personnel, 554.

Corresponding week, 1924:

Machines, 37; Passengers, 156; Crews, 61; Total personnel, 217.

Corresponding week, 1923:

Machines, 93; Passengers, 366; Crews, 153; Total personnel, 519.

Corresponding week, 1922:

Machines, 96; Passengers, 171; Crews, 140; Total personnel, 320.

Corresponding week, 1921:

Machines, 55; Passengers, 183; Crews, 70; Total personnel, 253.

Corresponding week, 1920:

Machines, 44; Passengers, 46; Crews, 46; Total personnel, 92.

Croydon Notes.

On Wednesday of last week Mr. Perry, of A.D.C. Aircraft Ltd., on an Avro-Airdisco, and Mr. Smith, of the Surrey Flying Services, on an Avro-Clergét, were flying between Hastings and Croydon in connection with the visit of H.R.H. The Prince of Wales to Hastings.

Mr. Smith, after having brought his photographs back for *The Evening Standard*, flew back to Hastings with copies of the paper containing the photographs. It may be thought that there could be little saving on time by aeroplane over train on such a short route as that between London and Hastings, but as a matter of fact an hour

was saved on each journey, allowing the papers to be on sale in Hastings two hours earlier than would otherwise have been possible.

Mr. Jerry Shaw, of Shell, made the first business flight on his Moth last week. He went to Brough to visit the Blackburn Company. Low clouds and fog interfered all the way there and back, but those who remember Mr. Shaw as chief pilot of A.T. and T. in 1919-1920 will know that these conditions did not worry him much.

The Sunday services, which were closed down for the winter, were resumed on Sunday, so presumably the clout-casting season has opened in earnest.—G. D.

THE LONG-RANGE FOKKER—JUPITER.

The new long-range Fokker FVIIa (Bristol Jupiter) visited Croydon during the week ending April 9. It has been hired by a Mr. Van Leer Black, an American. Tanks have been fitted in the wings for a non-stop flight of 14 hours with six passengers.

The first big flight was booked for March 18, which was for a non-stop flight to Marseilles. The machine was completed on the evening of the 17th, and Mr. Beckman and Mr. Tepas tested it. After the test it was discovered that something had gone wrong in connection with the engine, and so it was decided to install another one. The machine was ready again at midnight, and the pilots took her out then and there for a test flight, which was satisfactory in every way.

At 03.05 hrs. the next morning Mr. Beckman and Mr. Tepas set out for Marseilles. They flew in clouds as far as Dijon and arrived at Marseilles at 09.32 hrs. They started back at 12.15 hrs. and reached Rotterdam at 07.00 hrs. The pilots certainly earned their pay that day.

After that Mr. Black hired the machine and flew to Naples. On March 30, piloted by Mr. Geysendorfer and Mr. Scholte he flew from Naples to Paris, non-stop, in 11½ hrs. There was petrol for a further 2½ hrs. in the tank. They encountered a stiff head-wind the whole way from Naples, other wise it had been their intention to fly non-stop from Naples to London.

Mr. Black came over to London with the machine last week, and then flew up to Liverpool to pick up an American friend who was arriving there by boat. They flew on to Glasgow, and the next day flew back to Holland. The Jupiter behaved perfectly—as usual.

One gathers that some highly interesting long-distance flights will be made with this machine in the near future.

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Edited by C. G. G. G.

Vol. XXXII. No. 16.

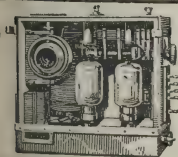
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ON THE BOURNEMOUTH MEETING.

If the well-earned holidays of people concerned with aviation must be spoiled by the effort to make the Great British public air-minded, and—as a by-product—by the efforts of intelligent racecourse proprietors to make money out of the rowing air-mindedness of the G.B.P., the least one can expect is that the spoiling shall be done as pleasantly as possible. And, to give the Devil his due (if one may use the simile in connection with so sanctimonious a place as Bournemouth—where Sunday flying is prohibited by the scheming of the uncommon good) there are worse places than Bournemouth at which to spoil a holiday. Also there is consolation in having air-races held at a race-course so well managed as that at Emsbury Park.

But, one fancies that in future the Emsbury Park people will be likely to favour meetings during ordinary week-ends in the Summer holiday season rather than at Bank Holiday times. Bank-holiday trippers go to Bournemouth to see the sea, not to trapse out to the suburbs. So, even if they were well advertised, flying meetings would not attract them. On the other hand, people staying in Bournemouth for a week or two would be quite glad of a change of scene and occupation.

Anyhow one hopes so. For, speaking for those who live and have their being by means of aircraft, one can affirm that a holiday for a few days is a good thing. Apparently most of the Great Ones of the Aircraft Industry agree with his opinion, for hardly any of them were visible at Bournemouth, even for one day.

Those who did go to Bournemouth, or had to go under orders or in their own interests, certainly had as good a time as could be expected at a period when everybody else is also holiday-making. The weather was as nearly perfect as no later. Which only shows that the ancient clerics who worked out the shifting dates for Easter according to that wonderful scheme shown in the Book of Common Prayer, involving the Golden Letter for the year, knew a great deal about meteorology. Even King Gama could not have rumbled at the weather.

THE RACING ARRANGEMENTS.

The racing itself was better than ever, and was much better arranged. The home turning-point was put in the South-east corner of the aerodrome (or hippodrome, rather), so that the machines had to fly the full length of the finishing-straight very time they came round. And the race-course owners had removed a large portion of the rails and posts, giving much more room for landing and starting.

From the point of view of the public two improvements could be made. Either the machines when not flying should be parked close up against the railings where people could see them at close quarters, or else they should be put in some sort of a paddock where they could be inspected for a small extra fee by people who were keen enough to pay for the privilege.

A bad feature about the course at Bournemouth is the fact that the ground falls away below the Race-course to such an extent that machines whose pilots believe in the virtues of hedge-hopping as an aid to speed disappear entirely from the public view and so cannot be kept in sight by those who wish to follow their fancy.

The worst of the course is that a large portion of it is over typical New Forest country, with patches of scrub and bog-land, so that even the best of pilots has to trust largely to luck whether he gets down safely or not if forced to land out in the wilds. Also, in the immediate vicinity of the aerodrome itself there are houses and gardens and things which practically compel a pilot, if his engine cuts out just after he has started, to commit the seldom-forgiven sin of turning with a dead engine to get back to the aerodrome.

Most of the regular Club aerodromes are free from these objections, and far the best aerodrome of the whole lot for a spectacle is Stag Lane, where a grand-stand erected on the hill in the far North-West corner, with its back to the afternoon sun, would command a perfect view of all the surrounding country. And Stag Lane would have the additional advantage of having almost perfect landing ground the whole way round any visible cross-country course starting from that direction.

One hopes the time will come when the de Havilland Company will equip Stag Lane as a racing aerodrome. The Hendon aerodrome gives a good view of the old course out towards Mill Hill, but the intervening landing ground is not as good as it is at Stag Lane.

POINTS AT ISSUE.

As to the Bournemouth races themselves, some rather interesting points arose for discussion during the Meeting. One was the question as to what or who is an "Instructor." Presumably when a prize is put up for "Club Instructors" it is intended to be offered as a reward for the professional aviators who devote their lives to the dangerous occupation of teaching people to fly. So naturally one would hardly expect serving officers of the R.A.F. who act as honorary instructors either to Service Flying Clubs, or to local Flying



THE MYSTERY MOTH.—Capt. de Havilland's Moth "X" (Cirrus Mk. II), which flew so fast at Bournemouth.



THE FASTEST LIGHT AEROPLANE.—The Widgeon III (Cirrus Mk. II), the latest product of the Westland Aircraft Works.

Clubs in which they take a personal interest, to be eligible for such competitions.

On the other hand, if they are to be barred, is it fair to admit keen amateur aviators who act as honorary instructors, such as exist in most of the Flying Clubs, to compete with professional instructors?

This again raises the point as to whether we ought not now to make some clear distinction between professional pilots and amateur pilots. Some day probably we shall have to make the distinction on social grounds, rather as is done in cricket. But at present the difference is rather that the professional instructors get so much flying that they must necessarily be so much more skilful than their own pupils that the pupils stand no chance against them.

Naturally there are exceptions. And the pure amateur—using the word amateur in its literal sense as indicating a lover of the game—may be even more skilful as a racing pilot than a good steady plodding pilot who has a genius for instructing people.

One might take Mr. Dudley Watt as the outstanding example of the amateur in the truest sense, even though he may endeavour to make his flying pay for itself by doing repair jobs and re-conditioning machines for other people in his own workshop. There are very few professional aviators who could beat Mr. Watt on equal machines, and there are many whom one would never hesitate to back him to beat, for the very good reason that one never bets except on a certainty. But the average private-owner pilot, or amateur aviator, is as far behind Mr. Watt as a racing pilot as the average girl player of club tennis is behind Mademoiselle Lenglen.

Be it said for Mr. Watt's benefit, as much as for anybody else's, that he is alive to-day very much more because he is clever than because he is wise. If his cleverness keeps him alive till he also learns wisdom he ought to be one of the World's very great pilots two or three years hence. He is just the type of young sportsman who would fly successfully a speed machine which older and more experienced pilots would refuse to fly, not because they thought that there was anything wrong with the machine but simply because they would not undertake to handle it.

Of course, Club flying is so young, and private owners are

so scarce up to the present, that one can scarcely expect the amateurs to fly as well as the professionals. Also none of the amateurs at Bournemouth were flying real speed machines. Most of them were on good old hardworking Club Moths. But a glance at the results of the Bournemouth flying shows how race after race was won either by professional pilots such as Mr. Hinkler, Mr. Youell, Flt. Lt. Openshaw, Mr. Sparks or Mr. Broad, or else by old hand at the game like Captain de Havilland or Sq. Ldr. Longton or Colonel Sempill, or else by very active R.A.F. pilots like Mr. Ragg or Flt. Lt. Gray. Even allowing for the difference in machines the genuine amateurs made a pretty poor show.

HANDICAPPING.

Practically all the races provided very close finishes. And some were won by inches. Mr. Goodman Crouch and Mr. Dancy have evidently got aeroplane handicapping down to fine art, and have the exact measure of every machine and pilot under every variant of weather conditions. And, after all, the duty of a handicapper is to provide as close a finish as possible so that if a man is to win he must show the highest skill and judgment.

Handicapping on a formula for the machine is well enough for a long race of considerable importance, such as the King's Cup, for that gives the best chance to the best designed machine assisted by the best pilot. But for meetings such as that at Bournemouth, where all sorts of machines turn up, from the very latest brain-waves to the very oldest nightmares, handicapping on formula would merely produce run-away wins every time. Consequently it is quite fair to lop bits off a man's handicap between one event and another when he has shown by his skill that he is better than other competitor on machines of the same type.

It is true that this between-races handicapping may lead to a certain amount of "pulling," as the horse-race people call it. But then every sport in which prizes are offered always leads to playing-up for a handicap in some form or other, generally by keeping dark in a number of events so as to get one's handicap increased and to score a run-away win in some big race which a man is keen to win.

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at Bournemouth. The landing area is very much too small to allow of very high speed landing, and we have not yet got to the stage which we shall reach in due course in which machines in the 250 m.p.h. class, and above, are fitted with slots and things to allow them to land slowly.

One imagines that the fastest of all the light aeroplanes there was the Westland Aircraft Works Widgeon III, which was unfortunately wrecked. Widgeon II, with the Genet engine, was claimed recently to be the fastest light aeroplane, at any rate of her power, but Widgeon III with the Cirrus engine must evidently be faster still, even as a two-seater, for she was rapidly overhauling Widgeon II in the race in which she was finally crashed.

Although she has more wing area than Widgeon II, and carries, one believes, some 300 lbs. more weight, including her structure, Widgeon III certainly looks much faster than Widgeon II when one compares the shapes of their bodies and their general lay-out. Therefore one imagines that Widgeon III must be the fastest two-seater light aeroplane in the World.

There were some other extremely interesting machines at Bournemouth. Notably there was the Moth "X," which Capt. Geoffrey de Havilland was flying. This is an experimental machine in which the firm are carrying out certain tests as to wing curves and engine position.

At first glance it is difficult to see that there is any difference between recent Moths and this new type. But the difference in speed is evident in the air.

The two Avro Avians, Cirrus engines, one of which has been bought by the R.A.E. Aero Club out of the prize money won by the Club last year, are very neat machines indeed.

SCRATCH RACES.

Now that so many firms are producing machines with similar engines one would like to see genuine scratch races for machines with engines of certain definite types. There are so many different machines now being built with Cirrus engines that there ought at any rate to be one scratch race at each meeting for Cirrus engines. And similarly for any other engine which can be produced at a price which will make it popular. Then we should really know who was building the fastest light aeroplane.

Naturally if two machines were very nearly equal the one which had the best pilot and the cleverest engine-faking ground engineer would win. But the probability is that as there are so many good pilots and good ground engineers the actual best aeroplane would win. At any rate, if the same machine won over and over again it would prove itself to be the best.

Here also would be an opportunity for real ingenuity in faking machines. There is hardly an aeroplane in this country whose performance could not be improved vastly by a little cleaning-up and faking. And just as the design of motor-cars was improved largely by the keen amateur who faked-up old cars and standard cars to go faster, so the time seems to be arriving when the keen amateur aviator can improve on the work of the most highly-scientific designer.

One believes that the original intention was that the Cirrus Handicaps at Bournemouth should be scratch races, but for some reason or another they were turned into handicaps, apparently on the known speeds of the individual machines

and the skill of the pilots, presumably with the idea of providing the public with a good finish. One merely suggests that in at least one race at each meeting the organisers need not bother about the public.

EDUCATING THE PUBLIC.

One of the most interesting things at the Meeting, because it showed the trend of public opinion, was the work of the joy-ride machines. How many passengers Lieut. C. Henderson and Mr. Davenport carried in their old Renault Avros one cannot even guess. But they carried as many passengers as ever they could take in the time.

The two machines just went up and down like lifts, uttering indifferent to the direction of the wind either in getting on or landing, so as to save taxiing in either direction. Which shows what the experienced joy-ride pilot can do.

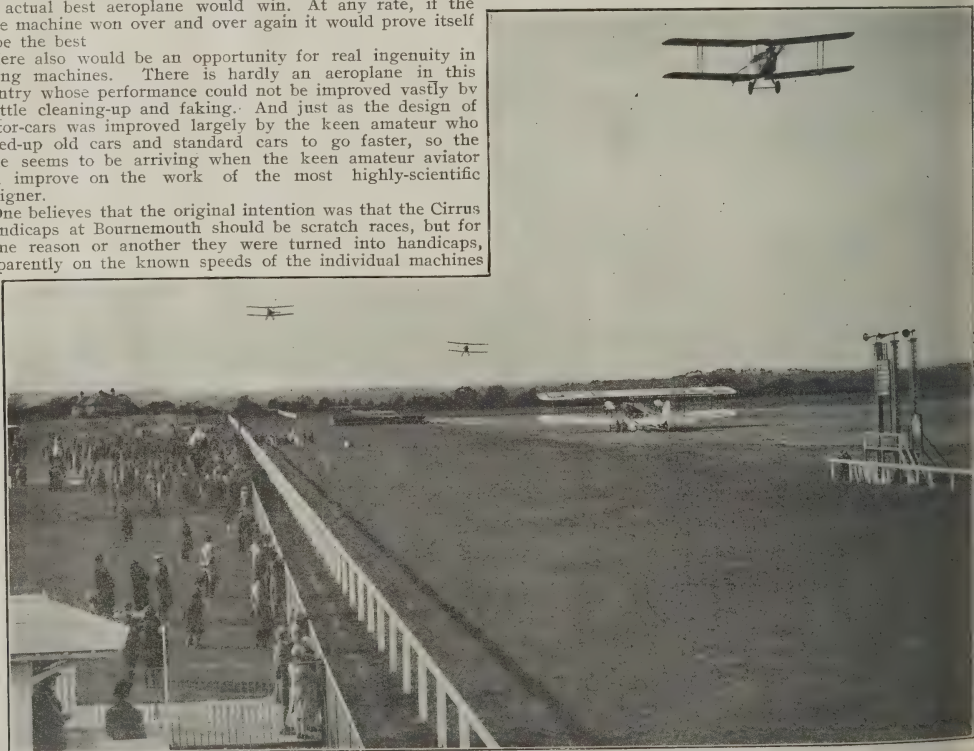
Imperial Airways sent the Handley Page Hampstead, with three Jupiter engines, to let the public see what the glider-line of the daily newspapers is like. This also "play to capacity," as the theatre folk say. It took people on short trips for half-a-guinea and for long trips right out the Isle of Wight and back for a guinea. The machine loaded and unloaded while races were going on and started and landed between races.

It carried 184 passengers on Good Friday, 1935 on Saturday and close on 350 on Easter Monday, when it worked almost till darkness fell. Mr. Rogers and Mr. Walters showed this great machine with its fourteen or more passengers on board could be operated with all the precision of a joy-ride Avro. Of course, with its light Jupiter engines and a very small load of petrol the machine was flying dead light in spite of the number of passengers, but the way it jumped the ground like a scout was amazing. In fact it got off with a shorter run in proportion to its own length than a machine on the aerodrome.

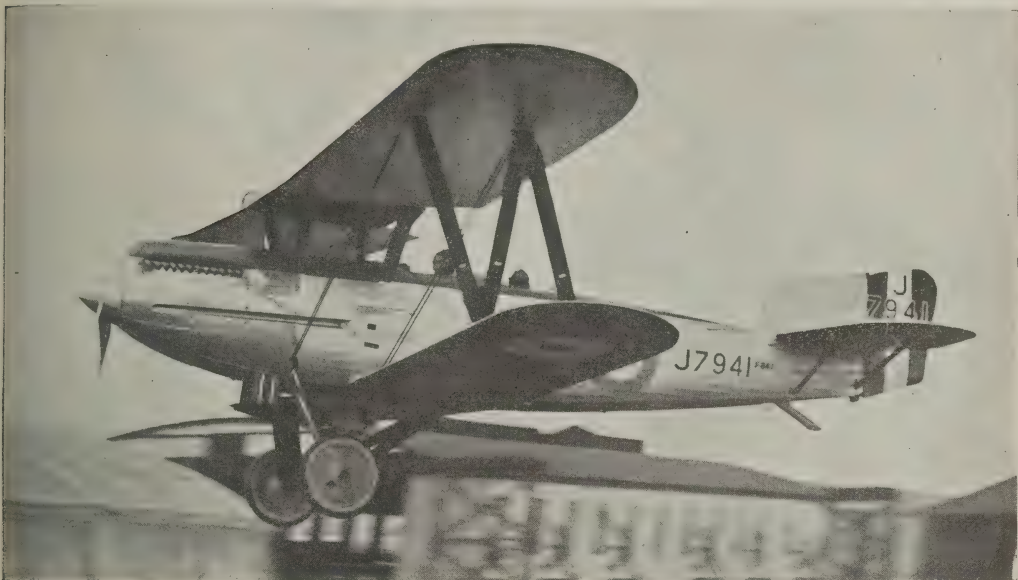
The amount of money it took in the three days must have left quite a handsome profit over the operating expenses. It was considerably more than the machine could have earned in the same time in any ordinary air line operation.

One suggests that whenever Imperial Airways Ltd. happens to want a little spare cash the Directors had better send few machines on such propagandist expeditions.

Altogether the Meeting must have done quite a good deal to increase the airmindedness of the nation. But one wishes that those who are responsible would not spoil people's holidays.—C. G. G.



A GENERAL VIEW.—In the left bottom corner is the Judges' Box. The notice-board with the loud-speakers is on the right. On the ground is the Handley Page Hampstead (three Jupiter engines), belonging to Imperial Airways. In the air are sundry light aeroplanes.



"Flight" Photo.

An Impression of the FAIREY "FOX" day bomber,

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE WESTLAND WIDGEON



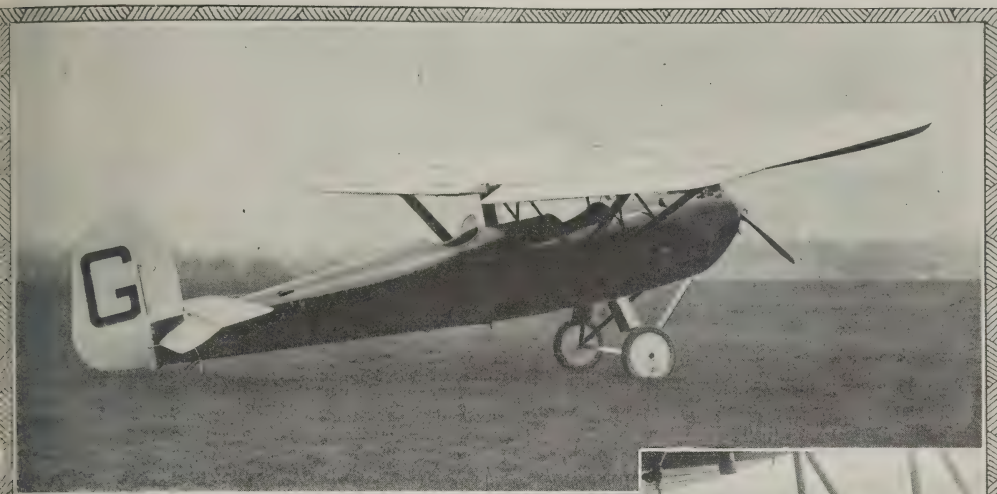
The Widgeon III is a very strongly built and substantial light aeroplane and, unlike a good many machines at present on the market, there is nothing flimsy about it and it is particularly suitable for real hard work. The machine carries passenger, pilot and about 50 lbs. of luggage. The engine is the well-known Cirrus Mark II, or the Armstrong-Siddeley "Genet." Being a parasol monoplane there is a most excellent view for both pilot and passenger in a downward direction, making the machine ideal for patrol or survey work.

In addition the wings are braced with struts and consequently there is no chance whatever of the rigging getting out of true and needing skilled attention. The passenger's entrance is through a door in the side of the fuselage and he has a very roomy cockpit. The aeroplane can be supplied with or without dual control. The machine is economical to run, the petrol consumption being approximately 20 miles per gallon, and the oil consumption is about one pint per hour. The overall dimensions of the machine when folded are only 8 ft. 6 ins. high, 10 ft. 6 ins. wide, and 23 ft. 1 in. long.

ENQUIRIES SOLICITED.



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POINTS TO NOTE.

1. General Robustness and Simplicity.
2. Substantial undercarriage, steel springs and ferodo damper.
3. No rigging to need attention.



PRICE
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Above:—The graceful lines of the monoplane.

Below:—The roominess of the passenger's cockpit.



Above:—The Aeroplane with wings folded.

Below:—The Engine Installation.

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BOURNEMOUTH BLATHERINGS.

It has now come to be an accepted fact that all public holidays shall be desecrated by flying meetings. The origin of this custom is lost in that dim and murky past that is generally made responsible for England's rise to greatness and, in particular, permitted large towns, such as Bournemouth, to rise to such giddy heights of smug self-satisfaction that they might assume control over the air and prohibit flying on certain days. It is to be noted, however, that so far the Municipality has failed to place an embargo on the right of small children to ride on the personification of the City Fathers or the Borough Brethren, or whatever they call themselves, on the Undercliff Drive on Good Friday, at any rate.

It is very much to the credit of the Ensbury Park Racecourse Co. Ltd. that they should have succeeded in organising a very successful race meeting in spite of the activities of the Kill-joy Klan, although the latter should be conceded a few marks for the presentation of the Kill-joy Kup. One's only grouse against the whole affair is largely a personal one, derived from the fact that one consented in a fit of enthusiasm to stay in an outlying suburb of Bournemouth inhabited by a peculiar race whose one ambition seemed to be to go round eighteen holes without losing a ball.

But enough of Bournemouth. The Southern Railway has yet to commission me to produce a poster to go with the "Live in Surrey, Free from Worry" series entitled "Die in Hants, Be buried in your (Balloon) Pants."

The Ensbury Park Racecourse is in Dorset, which puts an entirely different complexion on the matter. This county has leapt into fame as the lair of a red-bearded individual who shoots at aviators, and careful investigation has elicited the fact that he is no relation to the Borough Brethren of Bournemouth but is a friend of Augustus John.—One takes no responsibility for this statement. It is merely newspaper gossip.

The incident of the shooting happened, as everyone who props his newspaper against the breakfast coffee-pot knows, on the morning of April 15, when Sq. Ldr. Longton was taking a preliminary canter over the course on what a very well-known daily paper called the Blackburn Bluebell. On landing the pilot went through the usual full gamut of interviews, after which the success of the meeting was assured.

The far-reaching arm of the Press told the World that there was an Air Meeting in progress in the vicinity of Bournemouth, and this announcement must have made those two tramcars which had the temerity to announce, in the smallest type possible, that they approached the vicinity of the Ensbury Park Racecourse to fairly envelop themselves with the sparks and smoke of pride. [NOTE.—The split infinitive is intentional.—E.D.]

A further development in connection with this incident was the announcement (sotto voce) that the insurance policies did not cover the machines against anti-aircraft fire. Also, a well-known petrol company seriously considered issuing a number of those small metal signs, that are a familiar sight on our disfigured country-roadside, to all pilots as seat cushions.

On the first day flying started at 14.30 hours, and thereafter the spectators were treated to a very full afternoon's worth of entertainment. The second race of the day brought out the brilliance of Mr. Dudley Watt as a racing pilot. His S.E.5a, after a successful course of rejuvenation at Brooklands certainly showed its appreciation for the attention, and by skilful flying it simply left the other S.E.5s standing. After this race the bookmakers began to wonder if it was going to be a good Friday after all.

By far the most amusing event of the afternoon was the Branksome "Cirrus" Handicap Stakes. With over a dozen entries this was run in two heats. In the second heat Capt. de Havilland on the D.H. Moth X, after completing only three of the four laps instead of proceeding onto the fourth lap made a large half-circuit to come in to land. On seeing this a large crowd of officials and D.H. supporters rushed towards him going through the motions of an agitated point duty policeman who is endeavouring to indicate to the individual who has stalled his engine at a crossing that he wants him to proceed. Eventually the pilot saw this, and with a sharp pull round he was away on his course again in full cry after Mr. Stack, who had passed him in the meantime on Lady Bailey's Moth.

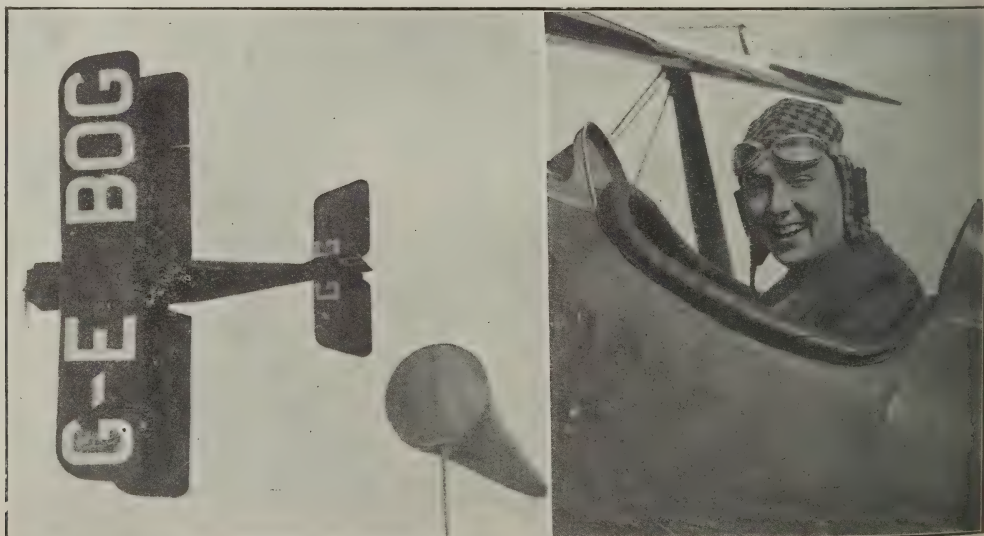
Capt. de Havilland eventually won this heat and the final as well, although in the final he set out on an additional lap to make certain of it. One humbly suggests that in future this Moth be fitted with a wooden joystick and a penknife be carried in an accessible position in the cockpit. After all if for no other reason, there is the precedent of the butt of the successful hunter's pet rifle.

The loud speakers, without which no air meeting would be complete, were installed on the scoring board in front of the Grand Stand. One does not know who the Uncle, or Uncles, was, or were, but for the purpose of the musical interludes one noticed his, or their, partiality for the Froth Blowers' Anthem.

Originally a number of officials installed themselves on top of an erection which resembled an all-metal version of one of those affairs used by the tramway companies for cleaning the overhead wires. This practice did not last long, however, and for a while the reason for the migration was unknown. Later it was discovered that they had moved to a balcony on the Grand Stand, behind which, it was said, there was a refreshment room, complete as fitted. As the musical items originated from this region, the significance of the Anthem may be better appreciated.

Those not in the know thought that the move as well as the Anthem had something to do with the coveys, flocks or clutches of Moths that kept coming past the stand.

Commercial Aviation was represented by the Imperial Airways Handley Page Hampstead, a giant super 14-seater mastodon flown by Messrs. Walters and Rogers and two Renault-Avros belonging to the Henderson Flying School and flown by Messrs. Henderson and Davenport. Between each race these three craft took up a continuous stream of passengers.

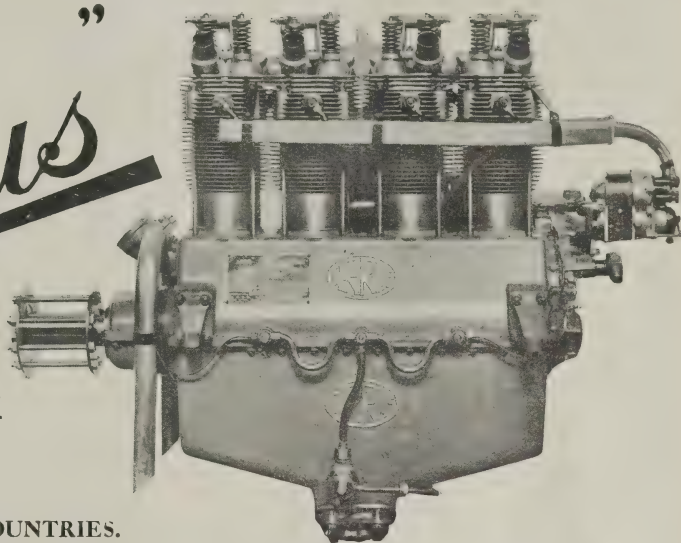


PLAN AND SIDE ELEVATION.—Mr. Dudley Watt cornering on his S.E.5a, seen from the ground, and in his machine, and hat, afterwards.



Cirrus

AERO ENGINES



have been

SUPPLIED TO 12 COUNTRIES.

HAVE FLOWN OVER ONE MILLION MILES.

ARE IN USE BY THE 7 ENGLISH LIGHT AEROPLANE CLUBS.

THE ROYAL AUSTRALIAN AIR FORCE, AND AEROPLANE CLUBS.

THE IRISH FREE STATE AIR FORCE.

SIMPLE, RELIABLE and ECONOMICAL, they are THE engine for the Private Owner.

EASY TO START, OPERATE and MAINTAIN, they stand supreme for all Light Aeroplane requirements.

Many notable flights justify the claims made above and leave no doubt as to the high standard of efficiency of this engine.

5,500 miles.	LONDON TO INDIA.	(2 D.H. Moths. Messrs. Stack and Leete.)
1,464 ..	1st KING'S CUP AIR RACE, 1926.	(D.H. Moth. Capt. Broad.)
	1st AUSTRALIAN AIR DERBY, 1926.	(D.H. Moth. Sir Alan J. Cobham.)
1,000 ..	LONDON-ZURICH-LONDON.	(D.H. Moth. Sir Alan J. Cobham.)
		Etc. Etc.

THE "CIRRUS" IS NOW IN PRODUCTION and a maintenance department, adequate to all demands, is available for private owners.

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One of the Avro passengers was an Indian in a white turban, who went aloft grasping an umbrella. Mr. Le Roy Irvin appeared very concerned at this flagrant attempt to purloin his idea of a free type parachute.

Saturday's flying produced even better flying than that of the previous day. Messrs. Goodman Crouch and Dancy, the Handicap Kings, were getting used to the wiles of the various machines, and the slide-rules were settling down to a steady purr.

Mr. Dudley Watt again supplied a most thrilling finish in the first event, the Bournemouth Easter High Power Handicap, his S.E.5 worming its way through the field on the last leg of the last lap to beat the Avro Lynx by an airscrew bolt-head.

The enclosures were not anything like full, but considering the counter attractions of the Easter holiday and the fact that there was no visible publicity anywhere in Bournemouth to bring out the people the attendance seemed quite good. For the bloodthirsty there was no thrill. In the morning, a privately-owned Sopwith Dove wrapped itself up in a ball in a side-to-wind landing after shedding its cowl in the air but nobody of any importance saw this, and it had been swept up before the visitors arrived.

The Froth Blowers' Anthem record had apparently been set on in the excitement of the previous afternoon and Uncle Aero-Club put out some dance music as a variation. Further variety was provided by Lieut.-Col. Bristow, of the Clifford Street Follies, who executed an exhibition Charleston in the best Florence Mills style.

About 12.00 hours on Monday somebody conceived the brilliant idea of organising a parade of machines over Bournemouth, on the lines of the old-fashioned circus parade. Unfortunately the Hampstead was otherwise engaged or we might have had the procession complete with elephant. So at about 12.30 hours a long line of some fifteen aeroplanes flew along the coast from Poole to Boscombe with the idea of bringing out the people to the fair ground. This did not appear to have all the desired effect, as the crowd on Monday looked just about as small and select as on the previous days.

Easter Monday certainly produced the real thrills of the meeting. In the race for the "Kill Joy" Cup, Mr. Dudley Watt caused himself to be disqualified by the most audacious and dangerous practice of trying to pass inside a competitor on a corner. The sight was too unpleasant for words, for apart from the fact that the two machines nearly collided on a vertical bank, Mr. Watt nearly side-swiped his undercarriage



SAFETY FIRST.—Mr. Le Roy Irvin, the inventor and manufacturer of the Irving Parachute,—with his tame Moth, but without his harness.

in his recovery. His disqualification was due to his not having passed the turning point correctly. But the official announcement of his disqualification, together with the fact that he would not be permitted to take part in any further races of the day were received with a certain amount of relief.

Mr. G. I. Thomson, the Hampshire Aeroplane Club instructor, on one of the Hampshire Club Moths, provided some excitement in the first heat of the Bournemouth and District Hotels and Restaurants Association Handicap Sweepstake. Just after leaving the aerodrome after taking off his engine cut out and he turned back but he just could not make it. In a last effort to help the machine over the fence he pulled up its nose, stalled very low down and sat into the corrugated iron fence. The poor little Moth broke in two, half the machine being in the road and half in the aerodrome. Neither the pilot or the passenger was hurt.

Thereafter a hoodoo seemed to cast its evil influence over the proceedings and three machines were forced to alight while out on the course with engine trouble. The R.A.F. Aero Club's Avian and Cygnet were both forced down with minor trouble and both made safe landings, but the Widgeo III flown by Sq. Ldr. England and carrying the last remaining Miss Bruce, aged 15, as passenger, was compelled to land in the same field as the Cygnet, struck a boggy patch, and turned over onto its back, fortunately without damage to the occupants. The misfortunes of these three machines were intensified by the fact that at the time of their landings they were all well up in their respective races and Flt. Lt. Gra on the Avro Avian belonging to the R.A.F. Club was leading on his last lap.

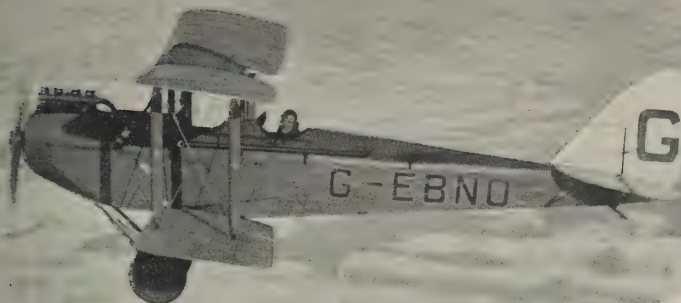
The outstanding feature of the whole meeting was the excellence of the handicapping, nearly every race ending in a real struggle to be first past the post.

On Monday the wind blew from the South, which was a bad direction as it entailed the machines' starting from the far side of the aerodrome in the opposite direction to the



THE AERIAL OAKS.—Miss O'Brien (left) the winner, and Mrs. Bell, wife of Flt. Lt. Bell, the R.A.A.F. Liaison Officer, the only competitors in the feminine race.

"AS CHEAP AS A CAR TO RUN AND MAINTAIN AND CHEAPER THAN MANY TO BUY."



THE DE HAVILLAND M O T H

ENGINE - 30-80 H.P. CIRRUSS

PRICE :

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READY TO FLY AWAY.

A M O T H ON VIEW IN LONDON.

For the convenience of those interested, who are unable to visit Stag Lane Aerodrome, a "Moth" is now exhibited in the Show-rooms of

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DEFERRED
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"THE safety of training on the De Havilland 'Moth' type of aeroplane is amply demonstrated by the latest figures issued by the Australian Aero Club, N.S.W. Section, which read as follows:—

Hours flown.....	440 h. 25 m.
Miles flown	26,400
Pupils passed out.....	11
Pupils under instructions	6

Two lady members of the Club are progressing very favourably with their training and no accidents whatever have occurred to pupils during instruction or after going solo."—*Extract from Official Report.*

THE DE HAVILLAND AIRCRAFT
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first leg of the course. On the Friday and the Saturday, the wind being from the North-West, machines took straight off from the near corner of the aerodrome by the enclosures for the first turning point. The Monday's take-off made it necessary for machines to do a left-about turn immediately after taking off and when three or four machines were starting off together this did not look too nice. It seemed as though it would have been more advisable if all machines had been compelled to turn round the turning point in the corner of the aerodrome.

As it was everybody was keen to get onto the course as soon as possible and in the interests of safety some pilots were forced to concede valuable seconds to avoid other machines. However except for the Thomson episode everyone got away on this turn without trouble.

The Avro Avians came into their own on Monday. Whether it was the invigorating effect of the sea air brought in by the

change of wind or merely that the pilots had been keeping just one or two horses out of sight of the handicappers one does not profess to know. Anyway Mr. Bert Hinkler scored two very popular wins, to the chagrin of the bookmakers as apparently lots of people suspected this pilot as the instigator of a dastardly plot to improve on the results of the first two days and the horsey gentlemen have so far been unable to judge aeroplane form.

All things, good and bad (meaning flying meetings and Easter holidays) come to an end, and thanks to the Southern Railway's time table one was compelled to go to one Waterloo via Bournemouth West at 17.30 hours before the Meeting was over. The placards haven't announced any further emoting events and so far no one has carried the war into the enemy's country by bombing Bournemouth, so one must let it go at that.—L. B.

THE AIR RACING AT BOURNEMOUTH.

GOOD FRIDAY.

The morning before the opening of the Bournemouth Easter meeting can scarcely have been considered promising. There was a strong and a very gusty Northerly wind, it was by no means warm, and the sun was not unduly in evidence.

By way of encouraging the competitors one of the local inhabitants took a pot-shot at Sq. Ldr. Longton on the Blackburn Bluebird while he was doing an air survey of the course during the morning, and apparently hit with both barrels of a shot-gun. One lot of shot peppered the port lower wing, and the other the fuselage just aft of the cockpit, but fortunately no damage was done to the pilot, and—apart from holes in the fabric—practically none to the machine.

It is pleasant to be able to record that the local police took rapid action in the matter, and had arrested and charged an apparently somewhat eccentric farmer on a charge of attempted murder by the following afternoon.

Racing opened promptly at the scheduled time of 2.30 p.m. Throughout the afternoon the running of the events kept to the time-table with a punctuality only previously equalled at the R.A.F. Pageant, and last summer's meeting at Bournemouth. There must have been at least a couple of thousand spectators present at the opening hour, and this number rose to between three and four thousand during the ensuing hour.

The first race—the Boscombe Stakes—was open only to instructors of recognised Flying Clubs flying standard Moths, and produced three entrants, Messrs. Sparks, of the London Club, Thomson, of the Hampshire Club, and Scholes, of the Lancashire Club,—all on Moths with Mark I Cirrus engines. This event was won fairly easily by Mr. Sparks.

The Poole Handicap, over four laps, open to any type of aeroplane piloted by its owner, drew seven starters, and produced an excellent race in which Mr. Dudley Watt, flying an S.E.5a, finished first, with Capt. Geoffrey de Havilland on his Moth X second. Mr. Watt's cornering in this event was remarkably fine, and largely accounted for his victory.

Capt. de Havilland's Moth, which is a slightly modified experimental machine, is evidently somewhat faster than the standard type—and it lost nothing of this advantage in its owner's experienced hands.

The Christchurch Handicap was in many ways the most interesting event of the day's racing. It was open to any Club aeroplane, flown by a Club member who must have been entirely trained by his Club.

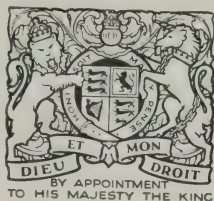
The entrants were Capt. H. Spooner of the London Club on Moth G-EBMF, Major K. Beaumont, also of London, on Moth G-EBKT, Mr. Twemlow of the Lancashire Club on Moth G-EBLV, and Mr. C. H. Craig of London on the London Club's Bristol Brownie G-EBJM. Considering the extremely bumpy air the standard of flying shown by these amateur pilots of necessarily limited experience was extremely good, and in particular Mr. Craig's performance on the lightly-loaded Brownie deserves special mention. It was so bumpy that Flg. Off. Ragg, on the Hawker Cygnet, had found it necessary to improvise shoulder-straps to keep himself in his seat, so Mr. Craig can scarcely have had a happy passage.

This race was won fairly easily by Capt. Spooner, with Mr. Twemlow second, leading Mr. Craig by a couple of yards.

The Emsbury Park Stakes, for aeroplanes with engines not exceeding 1,500 c.c., served as a reminder that not all the Lympe light aeroplanes have fallen into innocuous desuetude. Mr. Sparks flew the London Club's Bristol Brownie, Flt. Lt. Bulman the Hawker Co.'s Hawker Cygnet, Flg. Off. Ragg the R.A.E. (Farnborough) Club's Hawker Cygnet, and Flt. Lt. Comper the C.L.A.4 belonging to the Felixstowe Light Aeroplane Club. (This incidentally is the second of these machines, and not the same machine as that entered at Lympe by the Cranwell Club.) In addition to these three the A.N.E.C. II—reconditioned and fitted with a Bristol Cherub III by Lt.-Col. G. L. P. Henderson—was flown by



IN A HURRY.—A study of Mr. Bert Hinkler on the Avian (Cirrus Mk. II) winning the race for the "Kill-joy" Cup.



Bournemouth Easter Meeting.

Wakefield Castrol

was used by
the winners of
**EVERY
RACE!**

Thus repeating the results of the Lympne
Light Aeroplane Meeting last year; a
wonderful tribute to the ubiquity and
efficiency of—



—the Product of an All-British Firm.

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Branches and Agencies all over
the World.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



PASSING THE POST.—Mr. Broad on the Moth (Cirrus Mk. II) which Capt. de Havilland flew in the 1926 King's Cup Race.

Mr. N. H. Jones. This was the last machine designed by Mr. Shackleton before he joined the Beardmore firm.

The A.N.E.C. was scratch, the Hawker Co.'s Cygnet had 5 seconds start, the Farnborough Cygnet 11 seconds, and the Brownie and C.L.A.4, 30 seconds' start on a total distance of 10 miles. Mr. Ragg succeeded in just keeping his lead over Flt. Lt. Bulman on the sister Cygnet, and Flt. Lt. Comper finished third.

The Branksome "Cirrus" handicap for two-seaters with the Cirrus engine drew twelve starters, and was flown in two heats and a final. On general principles one would have imagined this to be a Moth race—but as a matter of fact there were also three Avro Avians, and a Westland Widgeon Mark III, which is pleasing evidence that the British Aircraft Industry is sometimes ready to follow a sound lead.

In the first heat Mr. Broad on Moth G-EBNO finished first, Flt. Lt. Pope on Moth G-EBPG second, and Sq. Ldr. T. England on the Widgeon III was third.

In the second heat Capt. de Havilland on Moth "X" G-EBQH was first, Mr. Neville Stack of banjule fame on Lady Bailey's Moth G-EBPU second, with Flt. Lt. Gray on the R.A.E. Club's Avro Avian G-EBQN third.

In the final the first three of each heat started. In this event Capt. De Havilland won by a very small margin from Mr. Broad.

During the afternoon the Handley Page Hampstead, with her three Jupiter engines, sent down for propagandist purposes by Imperial Airways, was busily engaged in giving joyrides, and long queues of paying passengers were lined up

awaiting their turn for flights on this machine and on Lt. Col. Henderson's Avros. Altogether hundreds of passengers must have taken the air on this afternoon.—W. H. S.

SATURDAY'S RACING.

On arrival at the Bournemouth Aerodrome on Saturday morning the main topic of conversation was the shooting of the Bluebird, and news came in that the shooter had been found and arrested. Interest was however quickly diverted when Mr. D. H. Williams, a private owner, started off in a Sopwith Dove. At a height of about 60 ft. the cowlings came adrift. Part of it fell to the ground and part of it got mixed up with the airscrew. Mr. Williams turned across wind back into the aerodrome, and on landing did a cartwheel and abolished most of the machine.

At the moment of the crash a member of the London Club was starting a flight in the Bristol Brownie. He took off and landed alongside the wreck, being there an easy first. Fortunately neither Mr. Williams nor the passenger was hurt at all. The passenger was having his first flight, and one gathers that he quite enjoyed it.

There were no further excitements during the morning but there was plenty of good flying to be watched. Wing Commander Douglas was down to fly the R.A.E. Club's new Avian in the Instructors' race, but the officials would not let him fly, as they said he was not an instructor within the meaning of the Act. Thereupon he seized on some unfortunate member of the club and proceeded to give him some dual instruction in the Avro Avian which the R.A.E. Club has just bought out of its prize-winnings of last year.



THE PASSENGER CARRIERS.—The Imperial Airways' Handley Page Hampstead (three Jupiters) on the ground, and one of Lt.-Col. Henderson's Avros (piloted by Mr. Youell) winning the Business Houses Handicap.

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A ROLLS-ROYCE AERO ENGINE in a Fokker monoplane flew from **HOLLAND** to the **EAST INDIES** in 1924.

A ROLLS-ROYCE AERO ENGINE in a Handley-Page aeroplane flew from **BRUSSELS** to the **BELGIAN CONGO** in 1925.

ROLLS-ROYCE AERO ENGINES in Dornier-Wal flying boats flew from **MOROCCO** to **SPANISH WEST AFRICA** in 1926.

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TAILS UP.—Mr. Stammers (QM) and Mr. Dudley Watt (OG) on S.E.5as starting from scratch in the High Power Handicap.

But even this did not soften the hearts of the stoney-hearted Stewards, and so he did not fly in that race.

Flg. Off. Ragg put in some practice in course flying and took the corners very much better than on the last occasion on which one saw him race.

The first race of the afternoon was the High-Power Handicap. In this were three resuscitated S.E.5as, flown by Messrs. Dudley Watt, Stammers and Flg. Off. Wheeler, and an Avro Lynx flown by Flt. Lt. Hamersley.

There was some magnificent flying in this by Mr. Dudley Watt. Starting level with the others, Mr. Watt got a lead of 100 yards by a quick turn in his take-off, and by sheer good cornering he caught Flt. Lt. Hamersley on the post and beat him by less than a length. He had gained a clear lead of half a mile on the two other S.E.s.

Mr. Watt can now be regarded as one of our very best and most skilful racing pilots. Probably he will always be known as "Dangerous Dan," but the epithet will have the same sort of connotation as has the word "Contemptible" as applied to the old British Army. Not only does Mr. Watt fly well, but he knows all there is to know about his machine, and, in addition to reconditioning and erecting his own machine, one is under the impression that the resurrection of both the other S.E.s was also his work.

During the intervals between the various events there was some good exhibition flying, notably by Mr. Broad on the Genet Moth. Queues were waiting for passenger flights in the Hampstead and in Lt.-Col. Henderson's machines.

There was some comment on the fact that Imperial Airways should be allowed to compete against an unsubsidised firm, such as the Henderson Flying School. But as both were taking their full quota of passengers, and as one was an open machine and one a cabin machine and so both offered different types of flights, there was not much ground for complaint.

The last exciting incident of the afternoon was the Winton Handicap—for flying schools or clubs. This resulted in a narrow win for Flg. Off. Ragg on a Cygnet over Flt. Lt. Comper on the C.L.A.4. The Imperial Airways Hampstead, which was landing when the C.L.A.4 was taking off, nearly sat on the small machine. Coming round on the last lap oil was seen to be streaming out of Mr. Ragg's machine. On landing he could hardly be seen for oil. It was found that his oil tank had sprung a large leak.

The Aerial Oaks took place also. This was open to women pilots only. Originally the Hon. Lady Bailey, Miss O'Brien, and Mrs. Bell had entered, but Lady Bailey, though present, was not allowed to fly owing to her recent accident. Miss O'Brien, on a London Club Moth with a Cirrus Mk. I, was first away, and was followed by Mrs. Bell on a Mk. II Moth. Mrs. Bell, not having much experience, wisely decided to

fly high, but as a result only made up half her handicap time, and finished ten seconds behind Miss O'Brien. Both ladies flew very well considering their lack of experience.

The whole day was packed with interesting flying, and the course was exceedingly well arranged, as the turning point and the finish were both where they could be seen well.

G. D.

EASTER MONDAY.

Easter Monday also provided some very fine racing, and the general dissatisfaction of every competitor with his handicap in every race supplied the usual evidence that the handicappers were just about right. The first event was the Bournemouth and District Hotels and Restaurants Handicap Sweepstake, designated by some irreverent aviator as the "Pub Crawl." The first moments of the first heat were what the French call "emotioning." Mr. Thomson, the Hampshire Club instructor, had his engine cut out on him for some reason unknown, and turned back to get into the aerodrome head to wind. From the stand it looked as if he were going as near stalling the machine as he dared so as to avoid running across the bows of other competitors who were starting behind him. That meant scraping in over the corrugated iron fence at the far side of the aerodrome and over the rails of the racecourse itself and doing a flat landing.

Whether he changed his mind at the last moment and tried to land outside the fence one cannot say. Anyhow, the machine definitely stuck its nose down and dived as it doing what the Americans call a "whip stall," for one got a top plan view of it in the act. Evidently at the very last second Mr. Thomson got the machine under control, for instead of hitting the ground nose first she charged the fence apparently on an even keel, and pushed her nose through it below the level of the double strand of barbed wire which runs along the top of the fence.

The barbed wire held and the fence collapsed, so that with the breaking of the wings the centre-section was swept back with the two strands of barbed wire lodged firmly immediately under the leading edge, where they must have missed the passenger's head by a small fraction of an inch. The engine only just hit the ground, so evidently the fence was an efficient cushion, but the shock broke the fuselage behind the pilot's seat, and so the poor Club's got none.

Incidentally the crash was an example of what might be avoided if anti-stall indicators and below-stall controls were standard fittings.

By the grace of God neither the pilot nor passenger was hurt. But one of the onlookers outside the fence would have been hurt if anybody had caught him, for, instead of helping to get the crew out of the machine and before anybody else



A CLOSE FINISH.—Mr. Dudley Watt on his S.E.5a beating Flt. Lt. Hamersley on the K-strut Avro in the High Power Handicap.

could get near it, he had scrambled through the hole in the fence and between the mangled wings of the machine, had taken a broken blade of the airscrew, and scrambled back through the fence, and had disappeared into the open country. The result of the heat was a good win for Mr. Dudley Watt with an average speed of 114 m.p.h. on his old S.E. with Mr. Broad on a Moth a good second and Sq. Ldr. England on the Widgeon III (Cirrus Mark II) third. The second heat was won by Flt. Lt. Openshaw on the Widgeon III (with the Genet engine) with Mr. Bert Hinkler second on the Avian (Cirrus Mark II), and Colonel Sempill third on the Moth (Genet).

The final of this race was won by Mr. Hinkler with Flt. Lt. Openshaw second, Mr. Broad third and Colonel Sempill fourth. In this race Sq. Ldr. England had the misfortune to make a forced landing in boggy ground and turned the Widgeon III upside down. Several local yokels were on the spot, but none of them made any attempt to help him or his passenger, the youngest Miss Bruce, out of the machine.

Miss Bruce took the whole thing quite coolly and, still hanging in the safety belt of the machine, discussed with Sq. Ldr. England which was the best way out. Evidently she is well fitted to become, like her two elder sisters, the life of an aviator.

It was a great pity that the machine was crashed, for it was a very interesting product. Besides it looked like winning, it was rapidly catching Widgeon II, which was ultimately good second.

The next event was the race for the "Kill-Joy" Trophy. This was also won by Mr. Bert Hinkler on the Avian (Cirrus Mk. II), with Captain de Havilland second on the Moth "X" (Cirrus Mk. II), and Mr. Stack on Lady Bailey's Moth (Cirrus Mk. II) third. Actually Mr. Dudley Watt was second, but he was disqualified for passing on the inside of the turning point on the aerodrome.

This was quite one of the most hair-raising incidents of the meeting. Mr. Watt was just overtaking Flt. Off. Wheeler, another S.E., coming along the straight and found himself contrary to Air Navigation Regulations) on the left as the two machines came to the turn. Placed as he was he could not get to the outside before reaching the turn nor could he pass Mr. Wheeler's machine. The two machines took the turn together steeply banked, and then Mr. Watt found that as his machine was thrown out by centrifugal force he was just about bound to catch Mr. Wheeler's machine with his wheels.

To prevent a collision he turned his machine over to the left, beyond a vertical bank, and pushed the nose down to the left, looking rather as if he were going to dive into the ground upside down. But about twenty feet from the ground he screwed the machine over to the right, flattened her out with his wheels certainly not more than ten feet from the ground, and carried on to the next turning point.

It was a wonderful exhibition of skill in getting out of a tight corner. But it was a corner in which a first-class pilot might never find himself. A little bunch of half-a-dozen A.F. pilots standing just in front of one actually did catch one another in agony at the sight. And they were mainly shaken for some minutes afterwards.

Following this came the first heat of the Holiday Final handicap. This was won by Col. Sempill on the Moth (Genet) with Wing Cdr. Sholto Douglas on the Avian (Cirrus Mk. II) second and Flt. Lt. Openshaw on Widgeon II (Genet) third. It was a very good finish with about four machines side ten seconds.

The second heat was won by Capt. de Havilland on the Moth "X" (Cirrus Mk. II) at 90½ m.p.h., a very high speed for a short course with such sharp corners. Mr. Hinkler on the Avian was second at 88 m.p.h., and Sq. Ldr. Longton



HOME AGAIN.—Mr. Neville Stack and his two sons.

on the Blackburn Bluebird (Genet) third at 84½ m.p.h. The comparative speeds are interesting.

The third heat was won by Flt. Lt. Gray on the R.A.E. Avian (Cirrus Mk. II) with Mr. Broad second on the Moth (Cirrus Mk. II), and Flt. Off. Summers on the Moth G-EBPG (Cirrus Mk. I) third.

The final was won by Mr. Hinkler on the Avro Co.'s Avian (Cirrus Mk. II), with Flt. Lt. Gray on the R.A.E. Avian (Cirrus Mk. II), second, and Mr. Broad, on the Moth (Cirrus Mk. II) third.

In this final and in the first heat Col. Sempill flew so low over the crowd that a number of people were definitely distressed. From a piloting point of view of course he was right, because he was flying on the outside of the other competitors as he was overtaking them, and if his engine had cut out his machine would always have had enough way to carry it into the aerodrome. But the uninstructed public could not be expected to know so much, and he would really not have lost any appreciable time by flying thirty or forty feet higher.

In the old days at Hendon people used to be disqualified for flying low over the crowd. Some such rule may be necessary in the future, for all pilots cannot be trusted to the same extent.

Anyhow, it was a very good race and brought the Meeting to quite a successful close.—C. G. G.

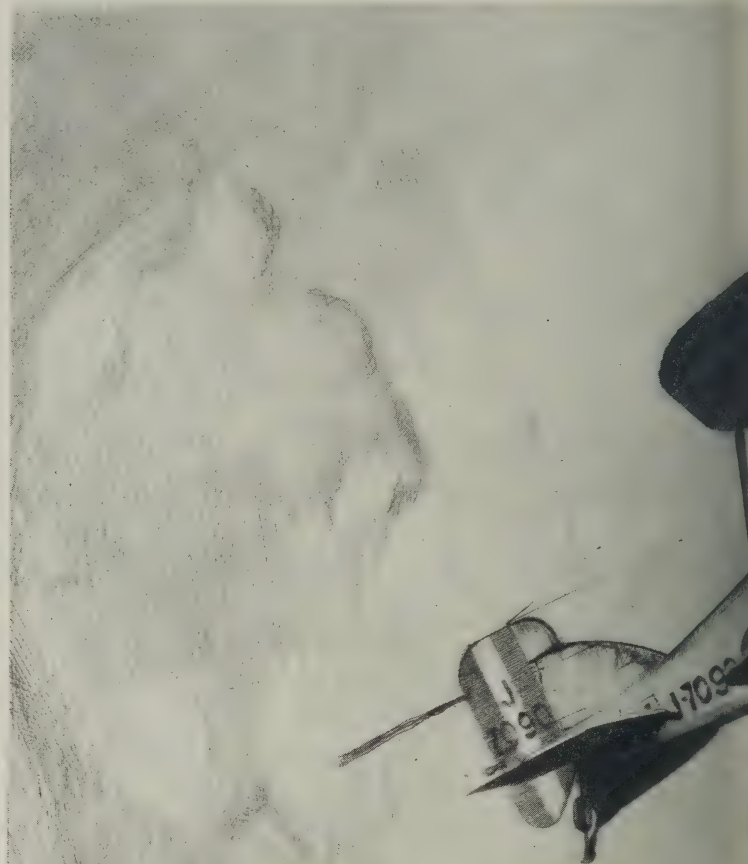


A SPEEDY TWO-SEATER.—Rear view of the Widgeon III (Cirrus Mk. II).

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FRIDAY, APRIL 15TH.

Event 1. Boscombe Stakes (Pilot Instructors)—First, Mr F. G. M. Sparks—D.H. Moth G-EBKT (Cirrus Mk. I). Second, Mr. G. I. Thomson—D.H. Moth G-EBOH (Cirrus Mk. I).

Event 2. Poole Handicap (Owner Pilots)—First, Mr. Dudley Watt—S.E.5a G-EBOG (Wolsey Viper). Second, Capt. G. de Havilland—D.H. Moth "X" G-EBQH (Cirrus Mk. II). Third, Lt.-Col. G. L. P. Henderson—Avro 548 G-EBAJ (80 h.p. Renault).

Event 3. Christchurch Handicap Stakes (Ab initio Club Pilots)—First, Capt. H. Spooner—D.H. Moth G-EBMH (Cirrus Mk. I). Second, Mr. C. Twemlow—D.H. Moth G-EBLV (Cirrus Mk. I). Third, Mr. G. H. Craig—Bristol Brownie G-EBJM (Cherub III).

Event 4. Emsbury Park Stakes (Engines under 1,500 c.c.)—First, Flg. Off. R. L. Ragg—Hawker Cygnet G-EBJH (Bristol Cherub III). Second, Flt. Lt. P. W. S. Bulman—Hawker Cygnet G-EBMB (Bristol Cherub III).

Event 5. Branksome "Cirrus" Stakes (two-seater with Cirrus engine), Heat I—First, Mr. H. S. Broad—D.H. Moth G-EBNO (Cirrus Mk. II). Second, Flt. Lt. S. L. G. Pope—D.H. Moth G-EBPG (Cirrus Mk. II). Third, Sq. Ldr. T. H. England—Westland Widgeon III G-EBPW (Cirrus Mk. II).

Event 6. Branksome "Cirrus" Stakes, Heat II—First, Capt. G. de Havilland—D.H. Moth "X" G-EBQH (Cirrus Mk. II). Second, Mr. Neville Stack—D.H. Moth G-EBPU (Cirrus Mk. II). Third, Flt. Lt. J. A. Gray—Avro Avian G-EBQN (Cirrus Mk. II).

Event 7. Branksome "Cirrus" Stakes, Final—First, Capt. G. de Havilland—D.H. Moth "X" G-EBQH (Cirrus Mk. II). Second, Mr. H. S. Broad—D.H. Moth G-EBNO (Cirrus Mk. II).

SATURDAY, APRIL 16TH.

Event 1. Bournemouth Easter High Power Handicap (Engines over 100 h.p.)—First, Mr. Dudley Watt—S.E.5a G-EBOG (Wolsey Viper). Second, Flt. Lt. H. A. Hamersley—Avro Lynx G-EBKQ (Armstrong-Siddeley Lynx). Third, Major F. P. Scott—Avro Gosport G-EBNE (100 h.p. Monognome).

Event 2. Winton Handicap (Inter-club and schools)—First, Flg. Off. R. L. Ragg—Hawker Cygnet G-EBJH (Bristol Cherub III). Second, Flt. Lt. N. Comper—C.L.A.4 G-EBPB (Bristol Cherub III).

Event 3. Bournemouth Aerial Oaks (Women only)—First, Miss O'Brien—D.H. Moth G-EBMF (Cirrus Mk. I).

Event 4. Bournemouth Business Houses Handicap (Local Advertisers), Heat I—First, Mr. A. B. H. Youell—Avro 548 G-EBAJ (80 h.p. Renault). Second, Mr. Crawford—D.H. Moth (Cirrus Mk. I). Third, Flt. Lt. J. A. Gray—Avro Avian G-EBQN (Cirrus Mk. II).

Event 5. Bournemouth Business Houses Handicap, Heat II—First, Sq. Ldr. W. H. Longton—Blackburn Bluebird G-EBKD (Armstrong-Siddeley Genet). Second, Sq. Ldr. T. H. England—Westland Widgeon III G-EBJT (Cirrus Mk. II). Third, Flt. Lt. Hamersley—Avro Lynx G-EBKQ (Lynx).

Event 6. Bournemouth Business Houses Handicap, Final—First, Mr. A. B. H. Youell—Avro 548 G-EBAJ (80 h.p. Renault). Second, Sq. Ldr. W. H. Longton—Blackburn Bluebird G-EBKD (Armstrong-Siddeley Genet). Third, Mr. Crawford—D.H. Moth G-EBOH (Cirrus Mk. I).

MONDAY, APRIL 18TH.

Event 1. Bournemouth Hotels and Restaurants Handicap (Local Hotels, etc.), Heat I—First, Mr. Dudley Watt—S.E.5a G-EBOG (Wolsey Viper). Second, Mr. H. S. Broad—D.H. Moth G-EBNO (Cirrus Mk. II). Third, Sq. Ldr. T. H. England—Westland Widgeon III G-EBPW (Cirrus Mk. II).

Event 2. Bournemouth Hotels and Restaurants Handicap, Heat 2—First, Major L. P. Openshaw—Westland Widgeon II G-EBJP (Genet). Second, Mr. "Bert" Hinkler—Avro Avian G-EBOV (Cirrus Mk. II). Third, Col. Sempill—D.H. Moth G-EBOU (Genet).

Event 3. "Kill Joy" Trophy and Stakes (Private owners)—First, Mr. Hinkler—Avro Avian G-EBOV (Cirrus Mk. II). Second, Capt. de Havilland—D.H. Moth "X" G-EBOH (Cirrus Mk. II). Third, Mr. N. Stack—D.H. Moth G-EBPT (Cirrus Mk. II).

Event 4. Bournemouth Hotels and Restaurants Handicap, Final—First, Mr. Hinkler—Avro Avian G-EBOV (Cirrus Mk. II). Second, Flt. Lt. Openshaw—Westland Widgeon II G-EBJP (Genet). Third, Mr. Broad—D.H. Moth G-EBNO (Cirrus Mk. II).

Event 5. Holiday Final Handicap (Open to all), Heat I—First, Col. Sempill—D.H. Moth G-EBOU (Genet). Second, Wing Cdr. Sholto Douglas—Avro Avian G-EBQL (Cirrus Mk. II). Third, Flt. Lt. Openshaw—Westland Widgeon II (Genet).

Event 6. Holiday Final Handicap, Heat II—First, Capt. de Havilland—D.H. Moth "X" G-EBOH (Cirrus Mk. II). Second, Mr. Hinkler—Avro Avian G-EBOV (Cirrus Mk. II). Third, Sq. Ldr. Longton—Blackburn Bluebird G-EBKD (Genet).

Event 7. Holiday Final Handicap, Heat III—First, Flt. Lt. Gray—Avro Avian G-EBQN (Cirrus Mk. II). Second, Mr. Broad—D.H. Moth G-EBNO (Cirrus Mk. II). Third, Flg. Off. J. Summers—D.H. Moth G-EBPG (Cirrus Mk. II).

Event 8. Holiday Final Handicap, Final—First, Mr. Hinkler—Avro Avian G-EBOV (Cirrus Mk. II). Second, Flt. Lt. Gray—Avro Avian G-EBQN (Cirrus Mk. II). Third, Mr. Broad—D.H. Moth G-EBNO (Cirrus Mk. II).

PARACHUTES IN THE SERVICE.

Flight Lieutenant F. O. Soden, D.F.C., R.A.F., read a paper on Parachutes before the Royal Aeronautical Society on Apr. 7. Colonel the Master of Sempill was in the Chair.

Flt. Lt. Soden said that he really knew very little about parachutes because the only parachute he had ever used was the Irving, the parachute in use throughout the R.A.F. Nothing in the world scared him more than leaping about the sky in a parachute.

Parachutes were just as essential on an aeroplane as lifeboats were in a ship. Every machine now being built for the R.A.F. was designed to carry parachutes and it was a punishable offence for pilot or passenger to leave the ground without his parachute. Already in the last eighteen months some half a dozen lives had been saved by parachutes in this country and this was when the R.A.F. was by no means fully equipped with parachutes.

Flt. Lt. Soden then proceeded to give a number of instances in which parachutes had actually saved lives. The instances came under the headings of—"Collision in the air, Controls jammed, Faulty design, Engine failure over impossible country in fog, at night, Structural failure, and Fire in the air."

He went on to say that fire in the air due to enemy action had been the cause of countless pilots and observers being killed in the late war. In 99 per cent. of these cases they would have been saved if they had been equipped with parachutes. When a machine was on fire it did not get out of control for some time. In fact one could in almost every case see the pilot side-slipping his machine to keep the flames away, till he could stick it no longer and had to jump out—without a parachute.

He also thought that there must have been a tremendous number of cases where the pilot had been rendered unconscious or killed and the observer, who might have been saved by a parachute, had been killed in the ensuing crash.

In the case of home defence Flt. Lt. Soden thought that a pilot would probably take even greater risks knowing that he had friendly country beneath him in the event of having to resort to his parachute. He added that if a pilot had something to crouch behind, such as a bulky engine or a small piece of armour plate, he would not mind

going right up to an enemy machine and staying there until his machine was shot to bits so long as he knew he had a good parachute.

He did not consider that the fear that a pilot might be tempted to use his parachute unnecessarily was worth considering.

He thought that very few people realised to what extent parachutes could be used apart from saving life. In this connection he quoted instances in which beleaguered garrisons in the East might have been kept supplied with water, food, and arms if the importance of the parachute had been realised in this direction. As recently as 1924 he had seen bags of rice and other foods being thrown out of machines from 1,000 ft. He thought the R.A.F. would have to have a supply and transport side solely for this kind of work.

In wars of the future a commander-in-chief would be dropping machine-gun teams and demolition parties behind the enemy lines in parachutes before launching an offensive.

Reverting to saving lives in the air, Flt. Lt. Soden described the various types of life-saving parachutes. There was the "Attached" type as used on balloons and airships. This type was hung in a bulky container on the side of the cabin or basket and had a life line attached which pulled out the parachute when the observer jumped clear. The attached type used on aeroplanes was more compact and the container was situated under the fuselage or in the fairing behind the cockpit. The pilot had to jump clear and hope that the parachute would not foul the tail or any other part of the machine. There was very little chance of getting clear if the machine was out of control.

Then there was the "Heinecke" type used by the Germans during the war. The pilot sat on the parachute and on jumping clear the life-line, which was attached to the machine, pulled the parachute out of its container. There was always the risk that the life-line might foul the machine or fail to break, on account of the pilot not getting enough velocity relative to the velocity of the machine. However he had seen a number of German pilots save their lives with this type during the war.

With regard to the "Free" type there were two kinds in this country. The Hoyt and the Irving. Both these types were more compact and up-to-date than the Heinecke but they were worn in much the same way, the main difference being that the pilot was not connected to the machine in any way but instead of a life-line the pilot pulled a rip-cord which opened the container and released a pilot-parachute which in its turn pulled out the main parachute.

He then described the construction and operation of the Irving parachute and illustrated his remarks by fitting the harness to a confederate and opening a standard model of this type. He called special attention to the strength and simplicity of the construction and the ease with which it could be packed and maintained. He explained that on being delivered to the R.A.F. each parachute was thoroughly inspected, packed and drop-tested with a dummy twice before it was issued for service.

Practice parachute descents in the R.A.F. were all voluntary. A trained Parachute Section (looked on, he was afraid to say, rather in the light of the Execution Squad now patrolling Shanghai) visited each aerodrome in England in turn and afforded everybody an opportunity of making a descent. Within the last eighteen months every rank of the R.A.F. from Air Marshal down to A.C.2., including doctors, padres, dentists, account and stores officers, clerks, batmen, cooks and butchers had made parachute descents.

FLT. LT. SODEN then went on to describe the live-jump, and pull-off methods of practice descents. In jumping out of a machine the pupil was liable, owing to nervousness, to pull the rip-cord too soon and foul the tail of the machine. Speaking as a pilot, FLT. Lt. Soden said that he preferred to have a tail left to land with.

The pull-off method, by which the pupil goes up hanging onto a strap and at a given signal from the pilot pulls his rip-cord and is pulled off the machine by his parachute, had met with a certain amount of opposition as being rather too easy. This method required no great mental effort on the part of the pupil as when once he had pulled the ring there was no more argument. He said that it was most amusing to watch the expressions of the various pupils, firstly when one signalled to them to let go with one hand to pull the ring and secondly when the jerk came.

Pupils were also taught how to land in order to take the shock with the least possible discomfort and how to stop themselves from swinging while still in the air.

He also described the method of making a delay drop, in which the parachutist deliberately lets himself fall a certain distance before opening his parachute. He paid a generous tribute to the work in his connection of Cpl. East and L-AC. Dobbs who were both killed recently.

He said that the sensation of dropping before the parachute opened was not so great in dropping from an aeroplane as it was in dropping from a stationary object because the parachutist was doing the same forward speed as the machine from which he drops. The jerk when the parachute opened was not unpleasant if the harness fitted properly. In fact it could be described as the most pleasant jerk in the world because it meant that the parachute had opened.

Dealing with the question of parachutes for civilians, FLT. Lt. Soden said that ninety per cent. of the machines being built in this country were for the R.A.F. and were fitted with special parachute seats and yet it was doubtful whether more than ten per cent. of the civilian test pilots testing these machines used parachutes. There was no order for them to do so and the average test pilot would not like to appear wearing one in case he was looked on as losing his nerve.

With regard to civilian passengers in cabin machines it was difficult to see how they could be fitted with parachutes. Even if this could be done they would have to have a scheme by which either the pilot could jettison his passengers by letting the floor of the cabin drop out, or seat each passenger alongside a window through which he could plunge. A previous lecturer to the Aeronautical Society six years previously had said: "The problem of getting all occupants out of multi-passenger machines is a very difficult one, but is receiving adequate attention."

FLT. Lt. Soden said that he wished to emphasise the following points:— "If any of you ever have to use a free type of parachute for practice, make up your mind to wear a parachute. It is time an air freighter was designed fitted with parachutes for dropping supplies." Thereafter he showed some most entertaining and educative cinematograph films, some official and some of Pathé taking. These gave the spectators an excellent idea of how parachutes work. The slow-motion pictures were particularly amusing, and those at normal speed gave one some idea of the thrill of dropping into space.

THE DISCUSSION.

COLONEL THE MASTER OF SEMPELL said that FLT. Lt. Soden had done most valuable work with parachutes in the R.A.F. and was a worthy successor of Air Commodore Maitland, Col. Ord Lees, Sgt. Newall and other parachute pioneers. He believed that the late L-AC. Dobbs was the only man who had done parachute descents from a machine in a pin. He thought that an automatic device was needed instead of having it to the parachutist to pull a ring. He read a note from Admiral Mark Kerr, who had been called away, stating that official assiduity had stopped the use of parachutes in the war, and that he thought that British parachutes should be used in the R.A.F.

LORD THOMSON, opening the discussion, said that the lecturer was characteristic of Air Force pilots. He described an experience of his in America when a heavy Pacific fog had prevented his making a parachute drop after a sleepless night thinking about it. He thought the question of freighters fitted with parachutes was a very important one. He would like to ask the Lecturer how the dummy pulled the ring in testing parachutes?

FLT. LT. JOHN POTTER, R.A.F., said that he did not approve of any sort of automatic opening device because the right moment for opening a parachute varied with every circumstance. Therefore the man with most judgment had the best chance of being saved, which as it should be. He did not agree that there was no unpleasant sinking feeling before the parachute opened.

MR. LE ROY IRVIN said that he had not expected to have to speak and felt rather like the man in the river who was asked by the small boy, "How did you come to fall in?" and replied "I didn't come to fall in; I came to fish." He believed that seven or eight lives had been saved by parachutes from machines in a tail spin. In the States there was a man doing nothing else but jump out of spinning aeroplanes with a parachute. He thought that all the talk about trouble in finding the ring was a matter of personal publicity. The ring was

always in the same place. He knew a man who had jumped from 150 ft. and found the ring on the way down. A parachute for a complete passenger cabin was not a practical proposition. He would like to point out that the Irving parachutes now made for the Air Ministry were all British, labour, materials and everything.

A Representative of COLONEL HOLT expounded the case for the Holt parachute at great length. (It has already been described in THE AEROPLANE.)

MAJOR H. H. EVANS mentioned the parachute which he represents (the Courtin) for which he claimed a quicker opening than any other, owing to the method of packing, and a quicker method of packing. He also said a few words for the Evans life-saving suit and the Evans Anti-Fire tank.

MR. J. D. NORTH said that as he had not invented a parachute he would be brief. He asked the Lecturer if he thought civilian test pilots should make practice drops. He also suggested that high diving would be good practice for parachute jumping.

MR. C. G. GREY said that it would be a great mistake to force civilian passengers to wear parachutes. Flying was quite dangerous enough without rubbing it in. Sea travel would not be made more popular by seizing passengers at the top of the gangway and fitting them with life-belts.

MAJOR R. H. MAYO said that Mr. Grey had anticipated one of his arguments by saying that parachutes were not advisable on airline machines. He thought that commercial aviation statistics had proved that they were not necessary in commercial machines. He hoped that the Air Ministry would not use parachutes as an excuse for buying dud machines. (Major Mayo did not use these words but one gathered that that was what he meant.) He wondered whether practice jumps were worth while. Could not the parachutes be tested and packed ready for emergencies and left at that and so stop this reign of terror in the R.A.F.

MR. COLEBROOK hoped that people would not take FLT. Lt. Soden's remarks too seriously. He too thought practice jumps were not necessary. One did not dive off a liner with a life-belt for practice. [Heaven forbid with the Board of Trade's present type of life-belt. One would assuredly break one's neck if one tried.] He thought the human element was more likely to operate correctly in an emergency than in a practice jump.

WING COMMANDER CAVE-BROWNE-CAVE said that airships should be so safe that parachutes were unnecessary. He added a few words of appreciation of the work of the late L-AC. Dobbs.

MR. GRUFFIN BROWER said that a parachute fixed to the cable of a balloon might prevent an accident from the cable falling onto people.

COLONEL THE MASTER OF SEMPELL asked whether the lecturer had any knowledge of the trials of parachutes other than the Irving?

FLT. LT. SODEN said that the Irving parachute had been selected for the R.A.F. before ever he had anything to do with parachutes. He did not believe there was a better one. He did not believe in any automatic devices to open the parachute. A man who could not keep his head should not go up at all. The whole idea of a free type parachute was that there were no cords or lanyards to catch up in parts of the machine. When a dummy was used the ring was pulled by a string from underneath the machine.

With regard to the sinking feeling before the parachute opened, speaking from personal experience all his "sink" had gone before he jumped. He had dropped dummies from as low as 75 feet and the parachute had opened successfully. With regard to the numbers of volunteers for practice jumps, he had never been able to compete with the demand. He was all in favour of practising parachute jumps. Experience prevented hesitation. The more experience a man had the more chance he had of getting out of a tight place.

THE ATLANTIC BLUES.

The Atlantic Ocean seems to be a very big bone of contention between aviators of many nations. We still have people who are proposing to fly from New York to Paris, and from Paris to New York for the Orteig Prize.

Why anyone living in dry U.S.A. wants to fly to wet Europe and get all mixed up with the Eighteenth Amendment and the *Carte des Vins*, or alternatively to fly from wet Europe to dry U.S.A. and ruin their teeth with iced water and their constitutions with what every self-respecting business man conceals in a special drawer in his roll-top desk, passes all comprehension.

The risk of falling into the intervening strip of water which is salt and undrinkable by both wets and dries does not seem to affect the issue. And in spite of the Sikorsky tragedy of last year we have several individuals preparing to repeat the performance.

On April 10 Commander Byrd, Mr. Floyd Bennett and Lieut. G. O. Noville, the first two of whom claim to have flown over the North Pole last year, were injured at New Jersey in a bad landing in a Fokker three-engined monoplane, on which they propose to attempt to fly the Atlantic.

After all, the Atlantic has been flown several times now, and nearly everyone is confident that it can be done again by any aeroplane that has the petrol capacity. And what good is it going to do anyway?

All these attempts for the Orteig Prize do is to draw a lot of publicity to individuals long before they are anything like ready to start, and when they crash, or fail from lack of money, or stop because of dissensions among the crews as to who is to be the pilot, the public are led to believe that aviation is purely a stunt. When anyone does win the Orteig Prize due space will be given to the performance in this journal, but from now on until then, the subject will be dropped and the space so saved will be devoted to interesting news.—L. B.



THE CHITTAGONG SURVEY.—The Air Survey Co.'s D.H.9 (Puma engine) and the camp of the firm's personnel during the unexpected floods.

THE WORLD'S DURATION RECORD.

On Apr. 12-14, Mr. Clarence Chamberlin and Mr. Bert Acosta flying a Wright-Bellanca monoplane (200 h.p. Wright Whirlwind engine) succeeding in remaining in the air over Long Island for 51 hours 11 mins., thus breaking the World's Duration Record previously held by MM. Drouin and Landry who on Aug. 7-9, 1925, on a Farman biplane, remained in the air for 45 hours 11 mins.

The machine carried a useful load of 3,080 lbs. and it continued to fly until all the petrol was exhausted.

A NEW DUTCH CONSTRUCTION COMPANY.

It has been announced in the Netherlands Press that a new aircraft construction firm has been formed in Rotterdam, Holland, under the title Maatschappij voor Vliegtuigenbouw Aviolanda.

The shipbuilding firm of Pot Brothers, of Bolnes, and Heer Burgerhout, shipbuilder, of Rotterdam, are partners in the new company, and aircraft construction will be undertaken in a shipbuilding yard at Papendrecht.

This company has been given an order for the construction of eighteen Dornier Wal flying-boats (two 450 h.p. Lorraine-Dietrich engines), an order that was originally placed with the National Vliegtuig Industrie (formerly run by Mr. Koolhoven and Colonel Walaardt-Sacr ) by the Colonial Department for use in the Dutch East Indies.

THE AERIAL CONTROL OF INSECT PESTS.

A paper by Mr. Dudley Wright read before the Institution of Aeronautical Engineers on Wednesday, Apr. 6, gave a fairly detailed account of the appliances and methods used in the United States for the spraying of cotton fields with calcium-arsenate in order to destroy the boll-weevil.

Experience has shown not only that the aeroplane used as an insecticide distributor could cover large areas in a very short time and at a very high speed, but curiously enough that it could be used effectively in weather conditions which were not suitable for spreading the insecticide from the ground and that in some respects it was even more effective than ground treatment.

In addition to the use of the aeroplane for spraying cotton fields it had been found useful both in America and in Ger-

many for the spreading of insecticide over forests, and in various tropical countries for the control of locusts and of malaria-carrying mosquitos.

THE CHITTAGONG SURVEY.

The survey by air photography in the Chittagong district which was undertaken by the Air Survey Company Ltd., of London and Rangoon for the Revenue and Settlement Department of the Government of Bengal has now been completed.

During this survey, which was only begun in the early part of January of this year, 1,200 square miles have been covered by vertical photographs. In spite of exceptionally unsettled weather conditions first-class photographic results have been obtained throughout.

During a period when uninterrupted fine weather can normally be expected, hail storms, gales and floods were experienced and caused much damage to the field party's camp and flying base.

Both a seaplane and landplane were used during the flying operations in accord with their suitability to the work in various parts of the area.

In addition to the main survey some work was done over tea plantations and maps to a scale of 8 in. to the mile were prepared.

In connection with some Settlement work which was urgently needed maps to a scale of 16 in. to the mile were prepared from some special photographs.

The survey party has now left for the Malay States to carry out further surveys, including a large-scale town plan of Georgetown (Penang).

In this instance it is interesting to note that Mr. Nevill Vincent (one of the Company's pilots) has just carried Burma's first aerial mail from Rangoon to Tavoy and Mergui (245 miles), which places have ordinarily only a weekly mail by sea. The flight took 3½ hours, whereas the sea passage takes 48 hours.

Mr. R. C. Kemp, the Managing Director of the Air Survey Co., is now in the East superintending the work on a number of contracts on which the Company is engaged, and Col. C. H. D. Ryder, the Chairman, who has been in India for two months, is expected home shortly.



AN UNINTENTIONAL AMPHIBIAN.—The Air Survey Co.'s D.H.9 on its flooded aerodrome during the Chittagong Survey.

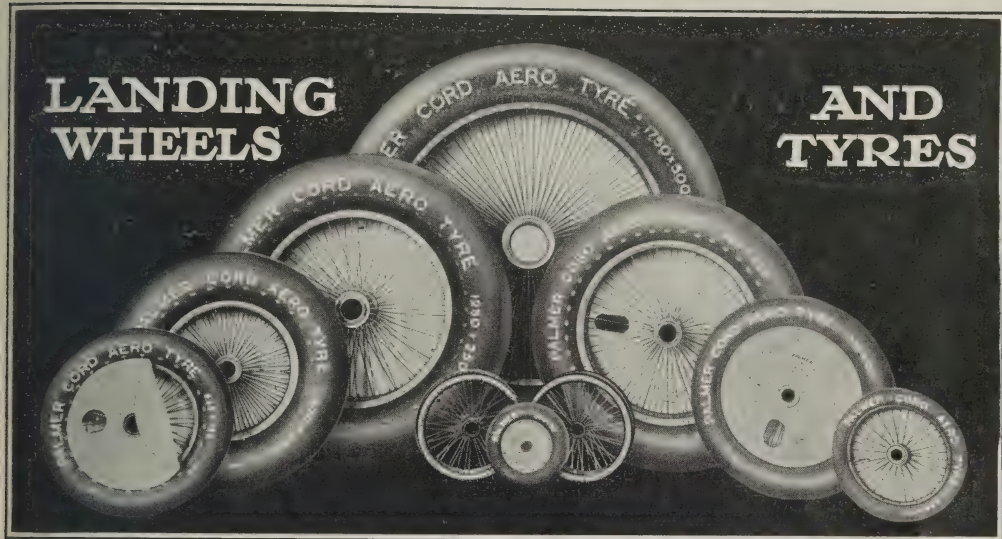


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375 x 55	168	111.12	25.4	Central	700 x 100	112	150.	38.09	Central	1000 x 150	210	185.	60.32	m/m Central
300 x 60	16	111.12	25.4	Central	"	176	178.	44.45	Central	1000 x 180	148	220.	80.	Central
"	"	"	"	"	"	179	178.	55.	132/46	"	149	185.	55.	Central
450 x 60	30	89.	31.75	Central	650 x 125	119	178.	55.	132/46	"	155	220.	66.67	Central
"	172	130.	38.09	Central	"	147	178.	55.	Central	"	166	185.	55.	125/60
575 x 60	21	160.	28.	Central	"	188	120.	34.92	Central	"	"	"	"	"
"	180	150.	38.09	104/46	750 x 125	77	178.	44.45	132/46	900 x 230	107	185.	55.	Central
"	186	120.	34.92	Central	"	92	185.	55.	135/50	"	108	185.	55.	125/60
"	90	150.	38.09	Central	"	95	185.	55.	Central	"	128	220.	66.67	Central
650 x 65	78	178.	44.45	132/46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	79	178.	44.45	Central	"	112	150.	38.09	Central	"	157	185.	80.	Central
"	100	178.	38.09	132/46	"	176	178.	44.45	Central	"	202	185.	60.32	Central
"	101	178.	31.75	132/46	"	179	178.	55.	132/46	1100 x 220	134	220.	66.67	Central
800 x 75	21	160.	28.	Central	800 x 150	161*	185.	55.	135/50	"	136	250.	80.	Central
"	180	150.	38.09	104/46	"	162*	185.	55.	Central	975 x 225	192	185.	60.32	Central
"	186	120.	34.92	Central	"	163*	185.	66.67	135/50	"	194	185.	55.	125/60
"	190	150.	38.09	Central	"	169†	185.	55.	135/50	1250 x 250	133	250.	80.	Central
700 x 75	78	178.	44.45	132/46	"	177	185.	55.	135/50	"	154	304.8	101.6	Central
"	79	178.	44.45	Central	"	183	185.	55.	Central	1500 x 300	115	304.8	101.6	Central
"	100	178.	38.09	132/46	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
"	101	178.	31.75	132/46	1000 x 150	167	185.	55.	125/60	1750 x 300	139	400.	152.4	Central
700 x 100	77	178.	44.45	132/46	"	174	250.	80.	Central	"	191	350.	150.3	Central
"	92	185.	55	135/50	"	182	185.	55.	Central	1750 x 350	193	400.	125.	Central
"	95	185.	55.	Central	"	187	220.	66.67	Central					
"	99	178.	38.89	132/46	"	201	185.	60.32	125 60					

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE ROYAL AIR FORCE.

The London Gazette.

Apr. 12.

GENERAL DUTIES BRANCH.—The following Flt. Cadets having successfully passed through the R.A.F. Cadet College, Cranwell, are granted perm. comms. with effect from the dates indicated and with seniority of Dec. 11, 1926:—**PLT. OFF. ON PROBATION.**—J. R. Mutch (Mar. 11). **PLT. OFF.**—H. G. Wheeler (Mar. 15).

The following are granted S.S. comms. as Plt. Offs. on probation with effect from and with seniority of Mar. 19:—P. F. G. Bradley, P. D. Cracroft, R. David, R. C. Hancock, S. Hutton, G. N. S. Lane, A. G. Mace, G. W. Monk, A. G. C. Somerhough, J. E. Stuart-Lyon.

The following Plt. Offs. are promoted to the rank of Flt. Off.:—J. W. Busted (Feb. 7); E. A. Swiss, J. W. Bayes, H. T. Andrews, E. G. L. Russell, A. M. N. David, A. E. Taylor (Mar. 12); F. G. S. Wilson, G. H. C. Ingle, A. W. Whitta (Mar. 18); S. A. Thorn (Mar. 21); H. G. Loch (Mar. 26).

The following Flt. Offs. are transferred to the Reserve, Class A:—J. T. O'Brien-Saint (Apr. 8); A. C. Lamb (Apr. 13).

Flt. Lt. W. F. Anderson, D.S.O., D.F.C., is placed on the retired list at his own request (Apr. 6); Plt. Off. B. J. Bushe-Caryesford resigns his S.S. comm. (Apr. 13); Sq. Ldr. F. H. Wickham Guard, C.M.G., C.B.E., D.S.O., relinquishes his S.S. comm. on account of ill-health (Apr. 14).

The following relinquish their temp. comms. on return to Army duty:—Flt. Lt. C. R. Richardson (Capt., E. Yorks. Regt.) (Apr. 8); Flt. Off. G. E. F. Reyes (Lt. A.) (Apr. 3).

Wing Cdr. P. S. Rickord (Cdr., R.N., ret'd.) relinquishes his temp. comm. on ceasing to be employed (Apr. 1).

STORES BRANCH.—The following Plt. Offs. are promoted to the rank of Flt. Off. (Mar. 10):—G. H. Doveton, R. H. Clay, D. J. Divett. **MEDICAL BRANCH.**—E. J. T. McWeeney, M.B., is granted a S.S. comm. as a Flt. Off. for three years on the active list, with effect from and with seniority of Mar. 24; Flt. Lt. (hon. Sq. Ldr.) F. E. Wilson resigns his temp. comm. (Apr. 1).

RESERVE OF AIR FORCE OFFICERS.—The following Plt. Offs. on probation are confirmed in rank:—W. T. W. Ballantyne (Apr. 6); J. P. James (Apr. 12).

The following are transferred from Class A to Class C:—Flt. Lt.—W. Halford, D.F.C. (Apr. 12). **FLT. OFFS.**:—J. V. Medcalf (Jan. 2); W. N. Sherlock (Apr. 9); W. A. Chase (Apr. 12). **FLT. OFF. R.** McLaughlin, D.F.C., is transferred to Class C from the Special Reserve (Apr. 6).

The following relinquish their comms. on completion of service:—**FLT. OFFS.**—W. H. Farrow, D.F.C. (Sept. 4, 1926); C. J. Clark (Mar. 4). **PLT. OFFS.**—C. R. Cottrell (Mar. 18); H. Kirk (Apr. 8). **FLT. OFF. W. H.** Statham relinquishes his comm. on account of ill-health, and is permitted to retain his rank (Apr. 13); **FLT. OFF. H.** Alexander resigns his comm. (Apr. 12).

Appointments.

Week ending Apr. 19.

GENERAL DUTIES BRANCH.—Flight Lieutenants J. T. Paine, to R.A.F. Station, Northolt, 1/4. R. R. Greenlaw, M.B.E., to C.F.S., Wittering, 19/4.

Flying Officers J. S. Nichol, to remain at No. 39 Sqn., Spittlegate, instead of to No. 2 Sqn., as previously notified. H. C. Gammon, to R.A.F. Station, Northolt, 15/4. F. H. Cashmore, to A.A.E.E., Martlesham Heath, 2/4. C. F. Caunter, to R.A.F. Station, Kenley, 1/4.

Pilot Officer R. G. Forbes, to No. 5 F.T.S., Sealand, on appointment to a S.S. Comm. (on probation), 6/4.

The Service African Tour.

The R.A.F. Flight under Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., which is flying from Cairo to the Cape, arrived Tabora on Apr. 10 accompanied by the South African Air Force Flight.

The two Flights flew from Tabora to Ndola, Northern Rhodesia, on Apr. 12.

The R.A.F. Flight arrived at Livingstone on Apr. 14 at 10.10 and were received by the Acting Governor and a number of officers of the Northern Rhodesian Police.

The South African Flight arrived about ten minutes later owing to their lower cruising speed.

Both Flights arrived at Bulawayo on Apr. 15 and Pretoria on Apr. 16. At Pretoria the Flights were welcomed by General Brink, Sir H. A. Van Ryneveld, Chief of the Aviation Department of the Union, and the Administrator of the Transvaal Province.

Seaplanes for China.

Among the various odds and ends of news from and about the affair in China, largely inaccurate, one notices in papers recently a suggestion or a rumour that the R.A.F. should, or is going to, send some of our large flying-boats to do river patrols up the Yangtse Kiang. One imagines that this is only newspaper talk, for one can scarcely believe that anybody in the R.A.F. would seriously consider using big flying-boats for such work.

THE AEROPLANE fought the cause of the big flying-boat for years when all the experts at the Air Ministry neglected it and when the flying-boat looked like falling into disuse. And nobody realises the extraordinarily high value of big flying-boats for their proper jobs better than one does oneself. Therefore nobody can accuse one of being hostile to flying-boats when one says that they are the one type of aircraft which is least suitable for war work on rivers.

For civil air transport on the great rivers of Asia and America the big flying-boat is the ideal vehicle, especially since the Southampton has shown us that it can actually carry a bigger load and fly faster with two engines than any twin engined commercial land-plane. Also for coast patrols against submarines and for long distance sea communications in time of war or peace the big flying-boat is far in front of any other form of aircraft, and one is even prepared to believe that it may beat the airship for trans-oceanic transport.

The objection to the flying-boat for river work in time of war is that it is far too vulnerable to rifle fire. It is so large that it can be very easily hit by rifle or machine-gun fire when moored out in the stream or when flying low. And to do the kind of job that it would have to do in river warfare it would have to fly low all the time.

A few bullet holes in the hull would mean that the boat would sink not very long after alighting. Or, if it did not actually sink, some of its compartments would become water-



IN ACTION AGAIN.—Squadron Leader Longton flying the Blackburn Bluebird (Genet engine) which was the object of anti-aircraft fire at Bournemouth on Good Friday.

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logged and it would be impossible to get the boat off again. Thus we should either lose some tens of thousands of pounds' worth of perfectly good aircraft, or at any rate we should have a large and expensive unit put out of action.

Obviously, the right thing for river work is the float seaplane. Being so much smaller it is much harder to hit while in the air, and, if while flying low the floats did happen to be punctured by bullets the machine could easily be slung up on a derrick on any of the attendant river gunboats and the holes in the floats could be plugged, or even new floats could be fitted with very little trouble.

Of course, the big flying-boats would look very impressive, but unfortunately the Chinaman is the last person in the World to be impressed by anything. One should always remember the story of the first aeroplanes which went to Peking. A certain British officer was walking in Peking with a Chinese mandarin when one of the first Avros came over their heads. The Englishman, wishing to be impressive, pointed to the machine and said to the Chinaman "Isn't it wonderful?" The Chinaman looked at him in mild surprise and said "But why? It is meant to do that, isn't it?"

The Chinaman is much more apt to be impressed by a number of small float seaplanes flying over his head and dropping bombs or machine-gunning him at short ranges than he is by big flying-boats patrolling the river and offering him a nice easy shot without doing anything particular in the way of retaliation.—C. G. G.

R.A.F. SPORTS AND PASTIMES. Association Football.

THE R.A.F. SENIOR CUP.

Calshot v. Martlesham Heath.—Martlesham Heath beat Calshot at Uxbridge in the final for the R.A.F. Senior Cup on Apr. 13 by two goals to one.

Both teams played a good game, but were often at fault in front of goal. The winners played as a real team and kept up a constant pressure. L-AC. Newland, on the left wing, was easily the best man on the field and led all the attacks. Calshot were good as individuals, particularly AC. Roe, but they played too much on the defence and their boots seemed to be of the "wader" rather than the shooting type.

The first goal was scored by AC. Chambers, a Martlesham forward. AC. Irwin then scored a goal for Calshot and before half-time AC. Rickaby scored the winning goal for Martlesham. The game was a good one on the whole and played in a fine, sporting spirit. The Referee had a very easy turn compared to his brethren in professional football circles.

It is interesting to note that both these teams were in the Junior Cup Competition last season before the alteration in the rules made the Junior Cup for Units of 200 or under instead of 500 or under.

Martlesham Heath have already beaten Felixstowe, 2-0; Eastchurch, 3-0; and Cranwell, 5-2, in this Competition.—J. C. R.

The teams were:—*Martlesham Heath.*—L-AC. Hadkiss, Flg. Off. Webster, AC. West (Capt.), AC. Carline, Cpl. Read, L-AC. Dixon, L-AC. Newland, AC. L. F. Smith, AC. Chambers, AC. Rickaby, Cpl. Perkins.

Calshot.—L-AC. Etherington, L-AC. Poore (Capt.), L-AC. Bennett, L-AC. D. Brown, AC. Roe, AC. Boby, Cpl. Kennard, AC. Oram, AC. Coley, AC. Irwin, T-AC. Starkey.

Service versus Trade.

The Napier Rugby Team are still carrying on the good work of meeting Service teams, and on Saturday, Apr. 9, the Team played the Aeroplane and Armament Experimental Establishment at Martlesham, who beat them at Felixstowe.

The land-going aviators at Martlesham had to go and play at the Seaplane Station because their own ground was under water. The Napier Team was met at the station by an R.A.F. tender which took them to the Felixstowe ground, and a very interesting game was played under ideal conditions.

The R.A.F. Team won by 13 points to 3. The Martlesham Team were:—Flg. Off. Wilson, Flt. Lt. White, Flt. Lt. Jenkins, L-AC. James, AC. Pearce, Flg. Off. Newton, AC. Saunders, Flt. Lt. Pope, Flt. Lt. Langford Sainsbury, AC. Jacobs, AC. Leighton, AC. Miles, Sjt. Reaney, AC. Caistor and AC. Fisher.

The Napier Team were:—R. W. H. Mark, H. C. Hutchinson, W. Lind Jackson, A. B. Wright, P. Foulds, H. Owen, D. S. Burns, C. Robson Elgle, H. L. Cleverly, H. J. S. Rowe, E. Scott, A. K. Harvey, A. E. Hanson, E. H. Huggins and T. Green.

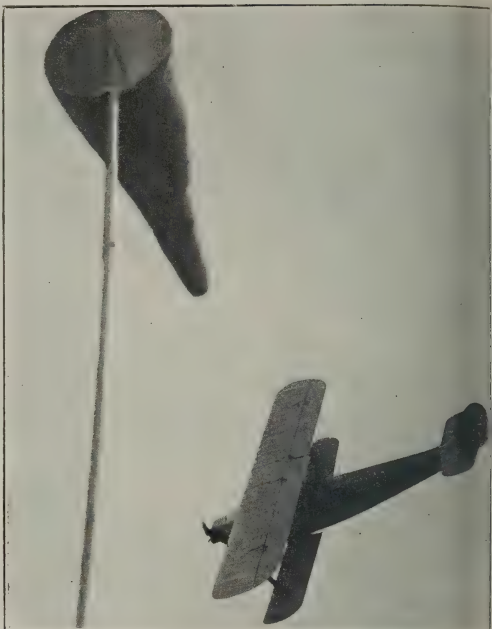
Inter-Service Hockey in Iraq.

The annual Hockey match between the Army and the R.A.F. was played at Hinaidi on Mar. 6 and resulted in a draw of 3 goals all. The Air Force attacked from the beginning and were leading by two goals at half-time. The first goal was the result of good work by Furman, who finished off a good run by sending across an accurate centre for Vessey to score. The second goal was an individual effort by Clarke.

The Army played like a different team in the second half, the forwards particularly showing more dash. Nawab Ali scored a good goal from a short corner for sticks and shortly afterwards Moore got through from a free hit just outside the circle. A neat passing movement on the right wing gave Vaisey the opportunity to score for the R.A.F. In the last few minutes a clever pass by Nawab Ali sent the right wing away and Moore scored the equaliser.

THE LONDON-PRAGUE AIR ROUTE.

In the House of Commons on Mar. 30, in reply to a question by LT.-CDR. KENWORTHY, the SECRETARY OF STATE FOR AIR said that negotiations in connection with the proposed establishment of an air line to Prague were at present in progress between Imperial Airways Ltd. and the Czecho-Slovakian authorities. There was no question of Government intervention.



SPORTS AND PASTIMES.—Flying Officer Linton Ragg cornering on the R.A.E. Hawker Cygnet (Bristol Cherub) at Bournemouth.

THE ROYAL AERONAUTICAL SOCIETY.

Expansion.—A new branch of the Royal Aeronautical Society has recently been formed at the School of Technical Training of the Royal Air Force at Halton. The Chairman of the new branch is Wing Cdr. C. D. Breese, A.F.C.

A Legacy.—The sum of £700 has recently been bequeathed to the Royal Aeronautical Society by Mr. Herbert Akroyd Stuart. This sum is to be held in trust to provide a prize once in every two years for the best paper on the subject of The Origin and Development of Heavy Oil Aero-Engines.

The lectures or papers will be known as "The Herbert Akroyd Stuart Lectures."

Mr. Stuart will be remembered for his Akroyd Cycle Heavy Oil Engines. He was one of the pioneers of compression ignition engines, and his death has caused a great loss to the engineering world.

A CORRECTION.

Owing to an extremely foolish mistake for which one was personally responsible, the Supermarine Seagull, illustrated in the Australian Issue of THE AEROPLANE last week was described as having a Rolls-Royce engine. As a matter of fact all the Seagulls supplied to Australia have Napier Lion engines, and the Napier Lion is the standard engine for this type of aircraft. In writing the inscription one evidently had in mind the Supermarine Scarab amphibian, built for the Spanish Navy, which has a Rolls-Royce Eagle IX.

C. G. G.

EXPANSION EXTRAORDINARY.

The Newcastle Daily Journal and North Star of Apr. 8 has discovered a really notable aircraft. The said paper says:—

ALL-METAL MONOPLANE.

TO ACCOMMODATE FIFTEEN PASSENGERS.

Notable developments are expected from a new all-metal monoplane now being built at Glasgow according to a German design for the Air Ministry. So far the work has been proceeding for over two years, but it is likely that the job will be completed this summer. In view of the remarkable length of the wing—it has a 170 ft span—it will be impossible to test it in Glasgow, and it will be packed up and sent to an English experimental station. The fuselage is narrow and deep, and in it will be accommodation for fifteen passengers, while there will be a crew of 2 pilots and a wireless operator. There are three engines of 600 horse-power each. An all-metal flying-boat with a single wing is also being built at Glasgow.

Mr. Brian Dodds, of Newcastle, who sends the cutting remarks "Some aeroplane, to need 32 pilots. I believe the *Mauretania* carries 32 engineers, so it may only be an intelligent prophecy." One might add that it must be some ship if it is too big for test on the Clyde.

The last sentence also suggests an intriguing aircraft. A flying-boat with a single wing strikes one as being more awkward to fly even than Mr. Courtney found the Autogiro with three wings instead of four.

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Aircraft Equipment

The finest aircraft may fail in its purpose if its equipment is unsatisfactory

The several items which will form the subject of this series of announcements are confidently recommended to the consideration of all Aircraft Designers, Manufacturers and Users, and to all concerned in the equipment of Air Organisations

ACCESSORIES FOR PETROL, OIL AND WATER SYSTEMS OF AIRCRAFT.

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Telephone: VICTORIA 6900
Telegrams: VICKERS, SOWEST, LONDON.

THE FLYING CLUBS.

The Lancashire Aero Club.

[Sec.: C. J. Wood, Windsor Bank, Chapel Street, Hyde, Cheshire.]
Report for week ending Apr. 16.

Flying took place on three days. Total time (excluding I.V. at Bournemouth) 25 hrs. 55 mins., made up as follows:—
Dual with Mr. Brown:—Miss Brown 1 hr. 10 mins., Messrs. Torres 1 hr. 5 mins., Anderson 40 mins., McNair, Meades and Ward 30 mins. each, Cohen 25 mins., Benson and Chapman 20 mins. each, Dobson and Keays 15 mins. each, Nelson and Bladen 10 mins. each.

Dual with Mr. Cantrell:—Messrs. Musgrave 35 mins., Shiers, Nelson and Chapman 30 mins. each, Torres, F. Scholes and Miss Emery 25 mins. each, Caldecott and Miss Barlin 20 mins. each, Rodman 10 mins.

Solo:—Messrs. Nelson 2 hrs. 10 mins., Costa 1 hr. 35 mins., Abdalla 1 hr. 25 mins., Lacayo 50 mins., Gattrell 35 mins., Bladen 30 mins., Hardy 25 mins., Twenlow 20 mins., Cantrell 20 mins., Goodfellow 15 mins., Scholes 10 mins., Miss Brown 10 mins.

Joy-rides:—With Mr. Cantrell:—Mr. Murrell 55 mins. (photography), Evans 25 mins., Jones 20 mins., Marstraw 10 mins., Miss Smith 10 mins., With Mr. Costa:—Mr. Abdalla 2 hrs. With Mr. Lacayo:—Mr. Caldecott 35 mins. With Mr. Michelson:—Mr. Keays 15 mins. With Mr. Goodfellow:—Miss Chignell 10 mins.

Test Flights:—1 hr. 50 mins.

Owing to the magnificent generosity of our President, Colonel Sir C. C. Wakefield, Bart., together with one of our vice-presidents, Sir William Lettis, of A. V. Roe and Co. Ltd., it has become possible to extend and improve our existing club-house premises. The work has already begun and is due for completion on June 18, as from which date it is expected that members will be so comfortable in the club-house that they will refuse to go out and fly!

The Cirrus-engined Avro Avian has been clearing the atmosphere lately and Mr. Brown has "left undone none of those things which he ought to have done" on her. Messrs. Cantrell and Goodfellow have also tried her and formed a high opinion of her flying qualities.

The Newcastle-upon-Tyne Aero Club.

[Sec.: A. H. Bell, Cramlington Aerodrome, Northumberland.]
Report for week ending Apr. 17.

Total 28 hrs. 20 mins. Dual 14 hrs. 50 mins. "A" Pilots 8 hrs. 25 mins. Solo (Training) 1 hr. 53 mins. Passenger 3 hrs. 20 mins.

The following members had instruction with Mr. J. D. Parkinson:—Mrs. Heslop, Miss Leatherth, Messrs. Thirlwell, Phillips, Middleton, H. Ellis, J. M. Kennedy, Hayton, Twine, Rasmussen, N. S. Todd, Miesegaes, Welch, Dr. Dixon, Capt. Milburn.

Solo (Training):—Messrs. Middleton, Turnbull.

"A" Pilots:—Miss Leatherth, Messrs. Leech, C. Thompson, R. N. Thompson, W. Baxter Ellis with Lawson, Urwin and Cockburn, Dr. Dixon with Mr. Leech.

The following had passenger flights:—Miss James, Mr. Adamson, Mr. Luckman, Mr. Irving and Mr. Grundy, all with Mr. Parkinson. The Club took delivery of its new Moth, G-EBQV, on Thursday. It was collected and flown up by Mr. Baxter Ellis, with Mr. Lawson as passenger.

The Yorkshire Aeroplane Club.

[Sec.: J. F. Barnes, 39, Swan Arcade, Bradford.]

Report for week ending Apr. 16.

Total flying time 3 hrs. 55 mins., consisting of:—Solo, 30 mins.; dual instruction, 2 hrs. 10 mins.; tests, 1 hr.; and joy-rides, 15 mins.

Messrs. Mann and Norway flew solo. Messrs. Carter, Mann, Swift, Norway, Wilson and Ling flew under instruction with Mr. Beck. Two more prospective members, Messrs. Lang and Parker, were given joy-rides.

On Tuesday, Apr. 5, Mr. G. R. Beck took up his duties as Club Instructor in the place of Mr. West, who has now resigned and has gone to Brough for his course of Reserve Training. Mr. Beck has been engaged in joy-riding for the past four or five years, the last two of which have been spent with the Berkshire Aviation Tours. On Thursday afternoon a D.H.50 Imperial Airways machine, piloted by Mr. R. H. McIntosh, landed at the aerodrome to fill up before proceeding on its way to the Croydon Air Port. Besides his mechanic he had only one passenger on board.

Report for week ending Apr. 16.

Total time for the week 23 hrs. 35 mins., made up as follows:—Solo, 11 hrs. 25 mins.; dual instruction, 9 hrs. 25 mins.; joy-rides, 2 hrs. 30 mins.; and tests, 15 mins.

Soloists:—Messrs. Carter, Clapham, L. S. Dawson, M. B. Lax, Mann and Wayman.

Instruction:—Messrs. Batcock, Brown, Clapham, M. B. B. Lax, Ling, Little, Mann, Swift, Watson, Wilson, and Winn.

Joy-rides:—the following are prospective members:—Messrs. Denby, Evans, John, and C. D. Whittingham. The latter is now only just 15 years of age, so that if he joins the Club immediately he will probably stand a good chance of having the distinction of being the youngest member to fly solo, which we understand is at present held by Mr. Sanders-Clark, of the London Club.

The whole of the week has been quite a busy one for the Club as the following log shows:—

Monday.—Mr. Beck flew over Leeds in honour of Sir Alan Cobham, who was lecturing at the Leeds Institute at 3 o'clock that afternoon.

Tuesday.—Sir Alan, at Mr. Beck's invitation, on behalf of the Club, visited the aerodrome and made a short flight in "I.S." He seemed much impressed with the possibilities of the aerodrome, especially from the point of view of instruction.

Wednesday.—Sir Alan again arrived at Sherburn and went off with one of our members (Mr. L. S. Dawson) in the Moth bound for Cramlington, which was reached in 1½ hours. Later in the day Mr. Dawson flew the machine back to Sherburn with a friend as his passenger.

The same afternoon two machines visited us, the first being a "9a" in charge of Sq. Ldr. Longton and Flg. Off. Watts from Netheravon. After a short stop Mr. Watts set off solo while Mr. Longton motored with Mr. Thornton to the Blackburn Works to arrange for the delivery of the Bluebird he was to fly at the Bournemouth Air Meeting. We are sorry to read of the attempt that has just been made to shorten his existence while on a practice flight near Bourne-

mouth, but were relieved to learn that he escaped personal injury, although the machine apparently suffered slight damage.

Our second visiting machine was Mr. E. A. Jones on his Avro. He had come from Turnhouse and after filling up with petrol and oil continued his flight to Clacton-on-Sea, where he intended to stay over the Holidays giving Joy-rides.

Thursday.—At 19.30 hrs. Mr. Beck arrived on "NN" from Stag Lane, having made a landing at the Central Flying School, Wittering.

Saturday.—Flg. Off. Atcherley, of the R.A.F., concluded the week's programme by giving an excellent exhibition of aerobatics on the Moth. He will probably join the Club as a member, and we hope other Service pilots will follow his example.—R. O. L.

The Hampshire Aeroplane Club.

[Sec.: A. N. Clifton, 49, Bugle Street, Southampton.]

Report for week ending Apr. 15.

We still have only one machine, but the flying time for this week reached the total of 16 hrs. 25 mins., consisting of:—Instruction flying 6 hrs. 40 mins. Solo flying 5 hrs. 55 mins. Joy-rides 1 hr. 50 mins. Test flights 1 hr. 15 mins. Flights to Bournemouth 1 hr. 45 mins.

We had entered for the Bournemouth meeting, and yet did not wish to interfere with instructing, but McCracken and Stanford determined that our Moth should be in good form for the races, and they worked all night as well as all day most of this week, so we were able to fulfil both obligations.

The following members had instruction:—Mrs. C. B. Fry, Mrs. Scott, Lieut. Graham, Master R. Sanders-Clark, Messrs. Shepherd, Southcliffe, Stokes, Wyllie, Dickson, Everett, Courtney, Dobson, Blake, and Major Jenkins.

The joy-rides were Mrs. Crickmore, Mr. L. A. C. Crickmore, Mrs. Shepherd, Sir C. Congreve, Mr. Miles (chief instructor to the Shoreham Club), Mr. Morrow and Mr. Price.

The soloists were Lieut. Graham, Flg. Off. Clarkson, Flt. Lt. Crawford, Don Juan de la Cierva, Messrs. Shepherd, E. Wyllie, Ash, Bowen, Nicholson, and Everett. Everett flew his first solo during this week, and made a good show.

In the Boscombe Stakes at Bournemouth on Friday, Thomson arrived home second, and Flt. Lt. Crawford flew in the Branksome "Cirrus" Handicap Stakes, but did not manage to win.

THE HAMPSHIRE AIR PAGANT.

The Seaplane Handicap Race, which was to have been held at the Hampshire Air Pagant at Hamble on May 15, has been postponed until the Autumn at the request of several intending competitors.

The other competitive events will be:—

THE PRESIDENT'S CUP RACE.—A Handicap Race open to any Aircraft, having an engine or engines aggregating not more than 100 h.p. piloted by a member of any British Aero Club. Course—33 miles, in three circuits. 1st Prize—The President's Challenge Cup and £50 (presented by Rt. Hon. Lord Louis Mountbatten, K.C.V.O., R.N.). 2nd Prize—£20. 3rd Prize—£10.

THE MORRIS OPEN HANDICAP.—Open to all comers. Course—30 miles. 1st Prize—The Morris Challenge Cup and £100 (presented by W. R. Morris, Esq.). 2nd Prize—£50. 3rd Prize—£15.

THE WAKEFIELD LIGHT AEROPLANE HANDICAP.—Open to any Light Aeroplane. Course—22 miles in two circuits. 1st Prize—The Wakefield Challenge Cup and £50 (presented by Sir Charles Wakefield, Bart., C.M.G.). 2nd Prize—£20. 3rd Prize—£10.

LIGHT AEROPLANE UTILITY RACE.—Entries limited to one Light Aeroplane from each of the six subsidised Clubs. Open to any pilot and passenger, both being members of the Club making the entry. Each competitor with the aid of his passenger will wheel his machine out of its "shed," unfold it, start up the engine, fly round the course with passenger, and rehouse the machine. A qualified inspector, appointed by the Stewards, will be in attendance on each machine to certify it after erection prior to flight. 1st Prize—The "Flight" Cup (presented by the Editor of Flight), "Stormgraph" (presented by Short and Mason Ltd.). 2nd Prize—Time-of-Trip Clock (presented by S. Smith and Sons (M.A.) Ltd.).

The Norfolk and Norwich Aero Club.

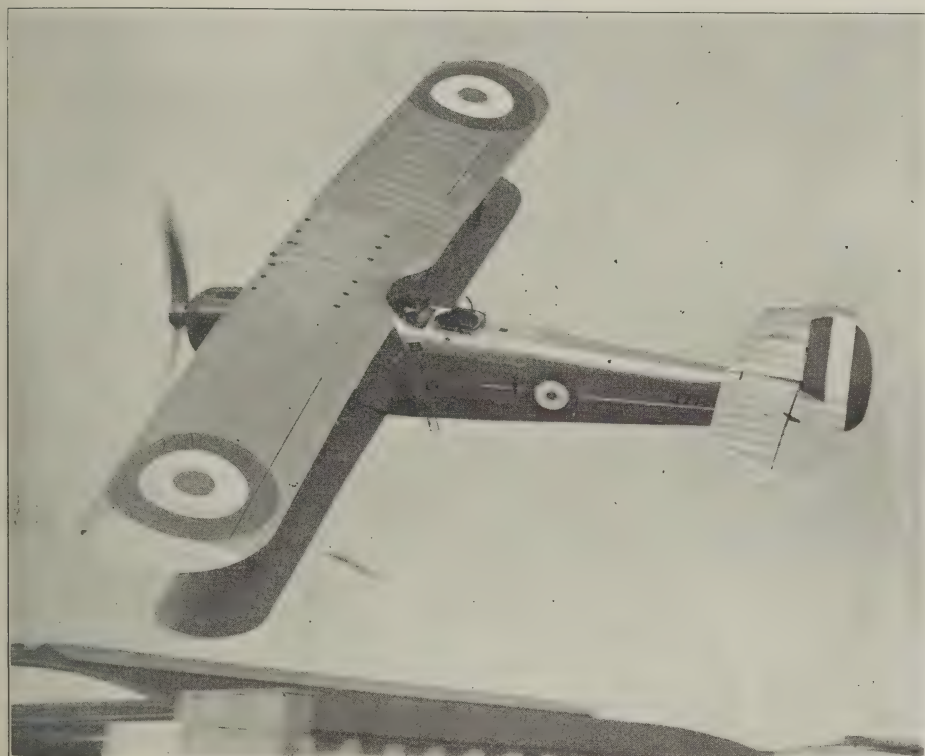
The Norfolk and Norwich Aero Club is making rapid progress. About 100 members have been enrolled and the total amount of the



THE VICTIMS OF MISFORTUNE. — Left to right, Mr. McCracken, chief Ground Engineer of the Hampshire Aeroplane Club, Mr. G. I. Thompson, D.F.C., Chief Instructor, and Mr. Stanford, the Club's Assistant Ground Engineer. The two latter were in the crash at Bournemouth on Monday which abolished the Hampshire Club's last Moth.

AIRCRAFT

OF ALL TYPES.



"Flight" Photo.

THE "HORSLEY."

The Hawker Horsley was selected, after exhaustive tests, as the R.A.F. Standard Day Bomber, once again demonstrating the efficiency of Hawker design and construction.

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BROOKLANDS.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

subscriptions received by Apr. 8 amounted to £938 19s. 3d. This is in addition to the cost of a Moth aeroplane subscribed by Mr. J. Hardy and Mr. H. V. Holmes.

The Scottish Flying Club.

A propaganda Committee for the purpose of starting a Scottish Flying Club was formed on Apr. 7 and consists of four officers of the Reserve of Air Force Officers, with Capt. R. C. Donaldson (T.A. Reserve) as Press and Propaganda Secretary.

The office of the proposed Club is at 107, St. Vincent Street, Glasgow. The objects of the proposed Club are as follows:—

To provide a means whereby sporting and practical instructional flying may be made possible and obtainable at the most reasonable figure at the leisure of the members.

To train members as pilots, provide and maintain machines for the instruction and pleasure of members.

To bring together those who are interested in flying, and thus form an organisation for the purposes of keeping in touch with all that is happening in the world of practical aviation.

An interesting feature of this committee is that all members have flying experience, four members are pilots and know the Glasgow district thoroughly from the air.

The East Kent Club.

The following letter has been received:—

Sir,—Efforts are being made to secure the establishment, under financial support of the Government, of a Light Aeroplane Club at Lympne for the use of the "air-minded" (to quote Sir Samuel Hoare) of this neighbourhood.

The Club would be similar in all respects to the six clubs already in existence at London, Newcastle and Hamble in Lancashire, Yorkshire and the Midlands. It would provide facilities for persons of both sexes living in Hythe, Folkestone, Canterbury, Ashford and Dover (all of which towns are within twenty miles of the aerodrome on good roads) to learn to fly at an extremely moderate price.

The subscription would be £5 gs. per annum.

Instruction by certified instructors would be given at reasonable rates.

The correspondence which has taken place with the Air Ministry has resulted in an intimation that, while no subsidy can be given at present, yet the Ministry will be prepared to grant special facilities and accommodation for the use of the Club at Lympne Air-port.

It is hoped that, owing to the phenomenal success of the existing clubs and to the fact that high Authorities are known to be deeply impressed by the valuable work already accomplished by them, the decision not to grant a subsidy may possibly be reconsidered by the Ministry if sufficient demand is manifested by those interested in flying in East Kent.

For that reason the persons who are interesting themselves in this matter earnestly entreat anyone living in this part of the country who is willing to support the scheme to send in his or her name and address as soon as possible to the undersigned, stating whether in the event of the formation of a Flying Club at Lympne, they would be prepared to join either as Flying or Ground members.

Persons so sending in their names, will, of course, incur no financial liability.

(Signed) R. DALLAS BRETT.

The address of the Organising Secretary of the Club, Mr. Dallas Brett, is 114, High Street, Hythe, Kent, and one hopes that any reader of this paper who lives in, or has interests in, that area, will communicate with him and will co-operate to the best of his or her ability.

There is already quite a good deal of enthusiasm in the area. One learns from Mr. Brett that there is already the better part of a hundred prospective members on the register, of whom seven are already pilots. There are also eight girl flying members (prospective) and only five people who have sent in their names with the intention of being ground engineers.

Mr. Brett himself, though not a pilot, has had a good deal of experience with aircraft, and his chief colleague is a former R.A.F. pilot. Both are men of good standing, so that would-be members need have no hesitation about co-operating with them.

One gathers that the Air Ministry is quite sympathetic to the movement and that the local authorities are also in favour with it. As an expression of personal opinion, one hopes that Sir Phillip Sassoon, the Assistant-Secretary of State for Air, whose home is at Lympne, which is practically Hythe, will be induced to take an active or at any rate financial part in the formation of the Club.—C. G. G.

The latest information is that the Club has collected 68 prospective members in twenty-eight days, of whom nine are pilot members, including Sir Alan Cobham. The Councils of both Folkestone and Hythe have passed resolutions approving the scheme, as also have the Chambers of Commerce in each of these towns. The subject is down for discussion at the Federation of Chambers of Commerce of Kent, which will meet shortly.

One hopes that this influential body will back up the scheme, and that as a result subscriptions will be forthcoming from the business firms of Kent which will enable the Club to begin operations even without a Government subsidy. That would be a much more satisfactory method of getting to work than merely passing resolutions calling upon the Government to subsidise the Club.

AIR AFFAIRS IN PARLIAMENT.

AIRSHIP CONSTRUCTION.

In the House of Commons on Mar. 31, in reply to a question by Mr. HARDIE, the UNDER-SECRETARY OF STATE FOR AIR said that the two airships to be constructed at Cardington and Howden would be of the rigid type. Both duralumin and stainless steel were being used in the framework of the Cardington airship and duralumin on the framework of the Howden airship. In reply to Mr. KENNIE-SMITH, SIR PHILIP SASSOON said that 10 rigid airships had been constructed in this country at a cost of $\frac{1}{4}$ or 4 million pounds.

CIVIL AVIATION SUBSIDIES.

In the House of Commons on Mar. 31, in reply to Mr. KENNIE-SMITH the UNDER-SECRETARY OF STATE FOR AIR circulated a table which included the following figures:—Estimated subsidies for Civil Aviation for 1926-27: Imperial Airways, European Services, £142,480; Egypt-India Services, £30,000. Light Aeroplane Clubs: Hampshire, £1,270; Lancashire, £550; London, £80; Midland, £1,080; Newcastle, £1,100; Yorkshire, £2,285.

The total figures for subsidies for Civil Aviation since the system started in 1921 were: 1921-22, £75,625; 1922-23, £181,752; 1923-24, £135,258; 1924-25, £138,511; 1925-26, £149,785; 1926-27, £180,747.

THE RUSSIAN AIR FORCE.

In the House of Commons on Apr. 4, in reply to Lt.-COL. HOWARD-BURY, the UNDER-SECRETARY OF STATE FOR AIR said that he had no official information as to the present strength of the Russian Air Forces. He did not know how many squadrons were kept in Turkestan. Lt.-COL. HOWARD-BURY asked whether the Under-Secretary was aware that there were over 100 aeroplanes stationed at the Tashkent aerodrome and at several other places on the Afghan frontier. SIR PHILIP SASSOON said that his information was not complete.

INDIA AND THE R.A.F.

In the House of Commons on Apr. 4, in reply to Mr. LANSBURY, the UNDER-SECRETARY OF STATE FOR INDIA said that the average contribution for the last five years paid to the Air Ministry by the Government of India in respect of the expenditure on the recruitment and training of personnel of the R.A.F. in India was £68,000. This was independent of transport charges which were borne by India and of the direct expenditure of the Government of India on the pay and maintenance of the R.A.F. Units in India.

In the House of Commons on Apr. 5, Mr. LANSBURY asked the SECRETARY OF STATE FOR AIR if there were any persons of Afghan nationality at present receiving instruction in the R.A.F. SIR SAMUEL HOARE: "The answer is in the negative."

R.A.F. ACCIDENTS.

In the House of Commons on Apr. 6, COL. DAY asked the SECRETARY OF STATE FOR AIR whether he had received a report of the coroner's statement at the inquest held at Hawking aerodrome on Pilot Officer Priestman and Lt.-AC. Pickering who were killed in an air crash at Elmham, and whether, in view of these remarks, instructions would be issued that unimportant flights should be discontinued in the future when indications had been received that the destinations were no longer desirable on account of fog.

The SECRETARY OF STATE FOR AIR said that he had seen the Press reports of the inquest but the reports of the official Court of Inquiry and of the Inspector of Accidents had not yet been received. He could not make any statement in regard to the orders, if any, which it would be necessary to issue when the Report had been received and considered. COL. DAY asked whether it was necessary to allow these men to take unnecessary risks in weather of this kind. SIR SAMUEL HOARE said that he certainly did not wish anyone to take unnecessary risks. Mr. HARDIE asked whether it was necessary for an airman to go up when ordered to do so. SIR SAMUEL HOARE: "Yes, Sir, certainly, if it is a proper order."

COL. DAY asked what percentage of accidents in the R.A.F. since the war had been due to wing-flutter or tail-flutter in the aeroplanes involved; what types of post-war aircraft had possessed either of these defects; if it had been found necessary to restrict the manoeuvres of any types of post-war machines; and whether such types were retained in use in the R.A.F. although they were known to be prone to wing or tail flutter. SIR SAMUEL HOARE said that he was not prepared to give the information for which the hon. member asked.

CIVILIAN ASSISTANTS IN THE R.A.F.

In the House of Commons on Apr. 6, in reply to Mr. E. BROWN, the SECRETARY OF STATE FOR AIR said that eight appointments had been made to the post of civilian assistant in adjutants' offices and three to the post of station-warden in the R.A.F. All these were ex-service men. The civilian assistants had been appointed to take over those duties formerly carried out by assistant-adjutants which could be performed by civilians, and to give adjutants all possible help in their office and clerical work generally. The duties of the station-wardens comprised the custody, receipt and issue of barrack stores, the recording of the consumption of electrical current, gas and water, and other similar barrack duties.

LANDING GROUNDS.

In the House of Commons on Apr. 6, in reply to a question by Lt.-CDR. KENWORTHY, the SECRETARY OF STATE FOR AIR said that so far as he was aware no municipalities had as yet made provision for landing grounds. The attention of local authorities had been drawn to the desirability of making such provision, particularly in connection with town-planning schemes. The attention of municipal authorities had been drawn to the need to get the land now so that its price would not be enhanced when aviation had developed further.

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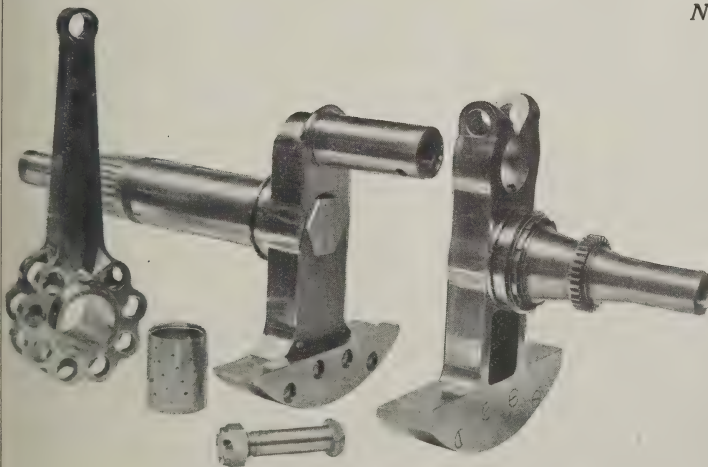
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The two-piece crankshaft incorporated in this engine allows the use of a solid type big end and floating bush bearing for the master rod.

The power transmitting portion of the crankshaft is solid and the accessory driving portion is rigidly secured by a clamping bolt and integral key.

The one-piece master rod, with its hardened steel liner, avoids the fundamental weakness of the split type of rod and permits high crankshaft speeds with absolute safety.

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK

Trips per Day.—Monday, 14; Tuesday, 14; Wednesday, 16; Thursday, 14; Friday, 12; Saturday, 14; Sunday, 5.

IMPERIAL AIRWAYS LTD.:

Paris—London; London—Brussels—Cologne: Machines 31, passengers 325, freight 12 tons.

AIR UNION:

Paris—London: Machines 30, passengers 93, freight 10½ tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 13, passengers 67, freight 2 tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 12, passengers 24.

PRIVATE:

Machines 3, passengers 4.

Total number of trips by British Machines, 34, carrying 332 passengers. Foreign Machines, 55, carrying 184 passengers.

Comparative Figures:

Week ending Apr. 17:

Machines, 89; Passengers, 516; Crews, 150; Total personnel, 666.

Corresponding week, 1926:

Machines, 89; Passengers, 461; Crews, 116; Total personnel, 577.

Corresponding week, 1925:

Machines, 102; Passengers, 419; Crews, 131; Total personnel, 550.

Corresponding week, 1924:

Machines, 39; Passengers, 163; Crews, 59; Total personnel, 222.

Corresponding week, 1923:

Machines, 96; Passengers, 366; Crews, 156; Total personnel, 522.

Corresponding week, 1922:

Machines, 75; Passengers, 211; Crews, 128; Total personnel, 339.

Corresponding week, 1921:

Machines, 53; Passengers, 179; Crews, 69; Total personnel, 248.

Corresponding week, 1920:

Machines, 36; Passengers, 32; Crews, 36; Total personnel, 68.

Croydon Notes.

The passenger traffic went up with a leap and a bound last week owing to people migrating for Easter. Imperial Airways alone carried 328 passengers.

A new *de Luxe* service, to be known as the Silver Wing, is to be run by Imperial Airways to Paris this Summer. It will be run to the standard of the Golden Arrow train service. But there will be no extra charge for the Silver Wing, which will be the ordinary mid-day service. The Argosies will be used and there will be a steward aboard who will serve light luncheons and refreshments.

For the Silver Wing services the Argosies have all been repainted silver and the interior is being done in silver and grey. More comfortable seats are being fitted.

Imperial Airways applied to the appropriate authorities for a licence to sell alcoholic refreshments, but were told that there was no law to permit or to forbid the sale of strong drink in an aircraft. So a licence becomes unnecessary.

The following paragraph appeared in *The Times* and other papers on Apr. 19:—

EASTER PARCEL FOR THE QUEEN BY AIR.

A parcel addressed to the Queen at Buckingham Palace was among the special freight carried by an Imperial Airways machine which landed at Croydon yesterday from Paris, where the Prince of Wales has spent a few days on his way to Spain. The parcel was immediately despatched to Buckingham Palace by motor-car. An Imperial Airways official said he believed it was the first time a parcel had been conveyed by air to a member of the Royal Family. One has never heard of the Post Office or any other transport concern broadcasting such personal and private affairs of members of the Royal Family before. The publicity seems a trifle unnecessary.

Our old friend of Daimler Airway days, Mr. "Buller" Herne, has been back in this country. Major Savage has a big sky-writing contract in Germany and Mr. Herne has returned from America for this job. Mr. Herne and Mr. Tait-Cox and a German pilot, Herr Rudolph, each took two S.E.5as across to Cologne and they will start work almost at once.—G. D.

ITALIAN AIR ROUTES.

In the House of Commons on Mar. 29, in reply to a question by Sir H. BRITAIN, the UNDER-SECRETARY OF STATE FOR AIR said that proposals had been made for the following four new air routes in Italy:—(1) Venice—Rome (extension of Vienna—Venice route). (2) Palermo—Cagliari—Balearic Isles—Barcelona. (3) Brindisi—Rome. (4) Rome—Bologna—Munich. They would not connect with any air routes in this country.



UNCIVIL AVIATION.—Holding an inquest on the shot-up Bluebird.—Left to right, Sq. Ldr. Longton; Mr. Thornton, the designer; Major C. C. Turner, the well-known writer; Mr. Hinkler, and the profile of Major F. A. de V. Robertson.

WANTED—A GOOD HOME.

A reader of *THE AEROPLANE* who can no longer accommodate them has for sale a complete set of *THE AEROPLANE* from No. 1, published in June, 1911, up to the end of 1920, bound uniformly in twenty volumes. They are in excellent condition and are naturally of considerable historical value.

He also has Nos. 1 to 30 of the French illustrated wartime publication, *La Vie Aérienne*, bound in one volume with the accompanying photographic plates of "aces" unbound. In addition he has a number of early aeronautical books, such as *The Aeroplane Speaks*, *The Boys' Book of Airships*, *Flight without Formule* and others, which would be of interest to collectors of aeronautical literature or to institutions which need a proper record of aeronautical history.


Anyone who is interested can be put in touch with the owner by writing to the Editor of *THE AEROPLANE*.

SEAPLANES.

On Thursday, Apr. 28, yet another lecture of great importance will be delivered to the Royal Aeronautical Society at the Royal Society of Arts, at 6.30 p.m. The subject of this lecture is "Seaplane Development," and the lecturer is Major R. E. Penny, who is one of the principal technical officers in the Department of the Air Member of Supply and Research at the Air Ministry.

Major Penny's particular care is the general design of seaplanes. He has been concerned with this work for a number of years, and he is known to all aircraft designers as being a thoroughly sound man on his subject.

For a considerable period seaplanes, and especially flying boats, were gravely neglected by the Air Ministry, and regular readers of *THE AEROPLANE* will remember that their



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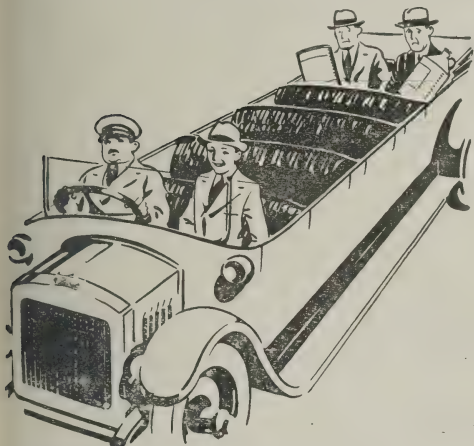


EAST COWES ISLE OF WIGHT.



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(Subject to official confirmation.)

Bournemouth Business Houses Handicap Sweepstake.

Won by Henderson's Flying School on Avro, using Pratts (ethyl).



was a considerable amount of agitation in this paper about such neglect. Of recent years, thanks very largely to private



AN AIRCRAFT WEDDING.—Flt. Lt. L. P. Openshaw, R.A.F. Reserve, the test pilot of the Westland Aircraft Works, and his bride, Miss Bruce, leaving the church after their wedding.

enterprise, in which the Fairey Aviation Company, Short Brothers, the Blackburn Company and the Supermarine Company have played a leading part, there has been remarkable improvement.

The Schneider Trophy Racers at one end of the scale and the Southampton flying-boats at the other end have shown that apparently seaplanes, despite their hulls or floats, can be just as efficient and almost as fast as land machines. In fact there seems reason to believe that in very large size flying-boats can actually be faster and more efficient in every way than land machines.

As the British Empire is entirely dependent on sea-borne traffic for its existence, it is obvious that seaplanes must ultimately prove to be of vital importance to our existence. Therefore everyone who is seriously interested in Empire communication should make a point of hearing Major Penny's lecture.—C. G. G.

PERSONAL NOTICES.

DEATHS.

NORTON.—On Apr. 3, 1927, at Durban, of enteric, Martin John Norton, late R.A.F., beloved husband of Poppie Norton, 10, Nightingale Road, Southsea.

SELBY ADES.—On Apr. 12, at Broadstairs, in his 32nd year, Alfred Dunstan Edmund Selby Ades, late Flt. Sub-Lt., R.N., after long suffering, most gallantly borne, through the effects of a flying accident during the War, eldest beloved son of Alfred William and Magdalene Ades, of Carlton House, Broadstairs, and great-grandson of Thomas Selby, Esq., of Ightham.

FORTHCOMING MARRIAGE.

COX—BRERETON.—The marriage between Flt. Lt. Charles Leslie Cox, R.A.F., and Miss Anne Brereton will take place on Apr. 28 at the Savoy Chapel.

MARRIAGES.

MOORE—FARO.—On Apr. 2, at St. Paul's Church, Canterbury, So. Ldr. Barry Fitzgerald Moore, R.A.F., son of the late W. R. F. Moore, M.I.C.E., of Melbourne, and Mrs. Moore, to Dorothy Gertrude, eldest daughter of R. S. N. Faro and Mrs. Faro, The Old Forge House, Canterbury.

OPENSHAW—BRUCE.—On Apr. 12, 1927, at St. John Baptist, Yeovil, by the Rev. C. F. Baines, M.A., D.S.O., and the Rev. J. E. S. Harrison, Laurence P. Openshaw, only son of Col. T. H. Openshaw, C.B., C.M.G., and Mrs. Openshaw, of 16, Wimpole Street, to Alice Jean Bruce, eldest daughter of Mr. and Mrs. R. A. Bruce, Yeovil.

BIRTHS.

BRADBURY.—On Apr. 5, at Roseneath Nursing Home, N.21, to the wife of Flt. Off. John Bradbury—a daughter.

O'BRIEN.—On Apr. 1, at a nursing home, Withens Lane, Wallasey, to the wife of T. V. O'Brien, M.B. (née Marigo Coronea), R.A.F. Medical Service, Baghdad—a daughter.

LALE.—On Apr. 10, at Heath Cottage, Iwer, to Winifred Mary, wife of Sq. Ldr. H. P. Lale, D.S.O., D.F.C.—a son.

AIRWAYS

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Edited by
C. G. Gray

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SIXPENCE WEEKLY.

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ON AVIATION IN AFRICA.

For some time nothing has been heard of the Khartum-Kisumu air line, the central section of what will ultimately be the great Imperial Airway to South Africa. The last heard of it was that a bad landing at Kisumu had wrecked the Fairey III D. which had been lent to Capt. T. A. Gladstone by the Royal Air Force to replace the Blackburn-De Havilland-Bristol-Short "Pelican" which was wrecked during its trials on the Nile through running into a floating log.

News had also come that Sir Sefton Branner had gone to Tanganyika Territory to persuade the people there to join the Kenya-Uganda-Sudan combine in supporting the Central African air line, and that our versatile and volatile Director of Civil Aviation intended to talk to some of the officials of the Belgian Congo with the idea of getting their support in traffic if not in direct subsidy.

An interesting letter from Mr. Hugo Dunkerley, the Editor of *The East African Farm and Home Journal*, and a copy of *The East African Standard*, which he kindly sent to *THE AEROPLANE* in March, now provides some further enlightenment as to the progress of aviation in Darkest Africa. Mr. Dunkerley says:—

"I, personally, am confident of the ultimate success of Capt. Gladstone's effort out here, but I fear that the bad luck which they have had has rather shaken the faith of some of the people who do not know the difference between a tail-skid and a prop! And of course the crashing of the R.A.F.-lent machine, following on the "Pelican" crash, was about the worst thing which could have happened in a country where there are so many dis-believers.

Nevertheless I am sure they will pull through all right in the end and one can only hope that they have now finished with crashes and will soon get things going again. Of course at the moment the mail service is temporarily suspended.

When it is remembered that the arrival of the four R.A.F. machines last year was the first time that any aeroplane had ever landed at Nairobi it will be understood what a great event that was, and you will realise how anxiously we are awaiting the advent of the flights from Egypt and South Africa which are due to arrive here on the 6th of next month. There is no doubt that General Branner's visit to Kenya has done much to stimulate interest in aviation out here.

May I, in closing, tell you how much *THE AEROPLANE* means to a person who is interested in flying but who lives in a country where one gets absolutely out of touch with aeronautical matters?

Those who are concerned with aviation in East Africa certainly need not be discouraged by the mishaps to the "Pelican" and to the Fairey III D. In neither case was anybody hurt, and the only damage was to matériel. When one compares these minor troubles with the lamented death of Mr. Fawcett and Mr. Broad in the accident to the very first machine which flew on the Western Australian Airway, there is good reason to believe that the East African service has begun quite well.

Ever since that first crash Western Australian Airways has been running with practically 100 per cent. efficiency. And it has done an immense amount of good by expediting and opening up trade in Western Australia, as was fully set forth in the Australian Issue of *THE AEROPLANE* recently.

The East African Standard sent by Mr. Dunkerley has a great deal to say about aviation. An excellent leader headed "A Test of Faith," enjoins on the readers of that paper to "show their faith by the fullest support of the development of aerial transport in this part of the Empire." Also it urges upon all communities and every Government in East and Central Africa to regard this present handicap as one of the necessary disappointments of pioneering and to pay tribute by renewed faith to the sportsmanlike action which encouraged men to prove to the World the importance and the possibilities of an air route through East Africa as a link between the Southern Continent and the centre of the Empire.

The article states that the British company who are developing this Imperial route had already under construction a modern three-engined machine before the accident happened to the Fairey seaplane at Kisumu.

THE D.C.A. IN KENYA.

An interview with Sir Sefton Branner published in *The East African Standard*, prior to his starting for Tanganyika Territory, whither he went to meet the Governor, Sir Donald Cameron, with the object of persuading the Tanganyika Government to support a permanent scheme of air development in the future, also throws light on development in East Africa.



THE QUESTION. Chinese Aviators of the Northern Army, said to be operating against the Cantonese. The machine is a Breguet XIV. Are they the pioneers of a great Mongolian Air Force of the future?

Sir Sefton's proposal is to extend the Kisumu line to Mwanza, which will soon be connected by railway with Dar-es-Salaam. This would connect the two main rail-heads in East Africa by a single service of seaplanes. But he said that the first objective was to establish the Khartum-Kisumu section.

He also said that the extension from Cairo to Khartum, which was at present being worked by the R.A.F., would also be taken over by a commercial company, possibly by the North Sea Aerial Transport Company itself, or perhaps an Egyptian company might establish a connection as far as Wady Halfa. Sir Sefton said that the main object was a through Cape-to-Cairo route, and that the South African Government had undertaken to provide a service as far North as the Limpopo.

As to the Belgian Congo, Sir Sefton explained that there was an obvious difficulty in expecting the Belgian Government to grant a subsidy to a foreign company. But it was quite likely that the Belgians would establish a link with Rejaf or Butiaba. If that were done he thought that the people of the Belgian Congo would support the line with freight and passengers, although not directly interested in the enterprise.

As to the present route from Kisumu to Khartum, Sir Sefton said that from a meteorological point of view it was easy and from the geographical point of view simple so long as there were no forced landings. It was essentially a job for three-engined machines. He would not recommend starting a permanent service with anything else.

He brought out one very interesting fact, namely, that when flying South there was a favourable wind at about 2,000 feet and that going North there was also a favourable wind at 6,000 feet in the opposite direction blowing almost permanently. Apparently the meteorological conditions of Central Africa provide a ready-made up and down line.

Sir Sefton also emphasised the value of aircraft in East Africa apart from regular air-line postal work. He pointed out the value of the "dissemination of insecticide," or what the Americans call "bug-dusting," on the Sudan cotton fields, and he believed that aircraft could even be used for fighting the tsetse fly. Also small aircraft would be very useful in such open country as Kenya for individual transport.

On Mar. 10 Sir Sefton was entertained at dinner at the New Stanley Hotel, Nairobi, at which the Acting Governor presided supported by Mrs. Denham, Lord Delamere, "Mr. and Mrs. J. Carbery" (he is really John Evans Freke, Baron Carbery, and cannot help it, seeing that he was born to the title), the Mayor of Nairobi and members of the Legislative Council. Captain T. A. Gladstone and Mr. Oxley Boyle, the second pilot on the Khartum-Kisumu line, were among the guests.

SURFACE VERSUS AIR TRANSPORT.

Another very interesting page in *The East African Standard* contains two articles contrasting the methods of surface transport and air transport. The first is a long description by Mrs. Elliott-Lynn, who may be remembered as having made something of a reputation as an aviator in this country, of her last journey to Kenya. Apparently she had hoped to fly there but at Khartum received the news that the "Pelican" had been wrecked, and so made the journey by boat and car, which took three weeks and five days.

The other article is an interview with Miss Auriel Lee, the well-known actress, who has for many years been keenly interested in aviation. Miss Lee had the good fortune to make the trip to Kisumu in four days in the Fairey seaplane which was lent by the R.A.F. As the first woman to cross the Equator by air, and the first woman to fly on the Central African air line, her experiences are well worth publishing in full.

They follow hereafter as told by the representative of *The East African Standard*.

BY AIR.

(An interview with Miss Auriel Lee.)

Miss Auriel Lee, a visitor from America, possesses the distinction of being the first lady to travel by the new Kisumu-Khartum Air Service. In an interview with a representative of *The East African Standard* she explained the circumstances which led to her making this interesting and eventful trip.

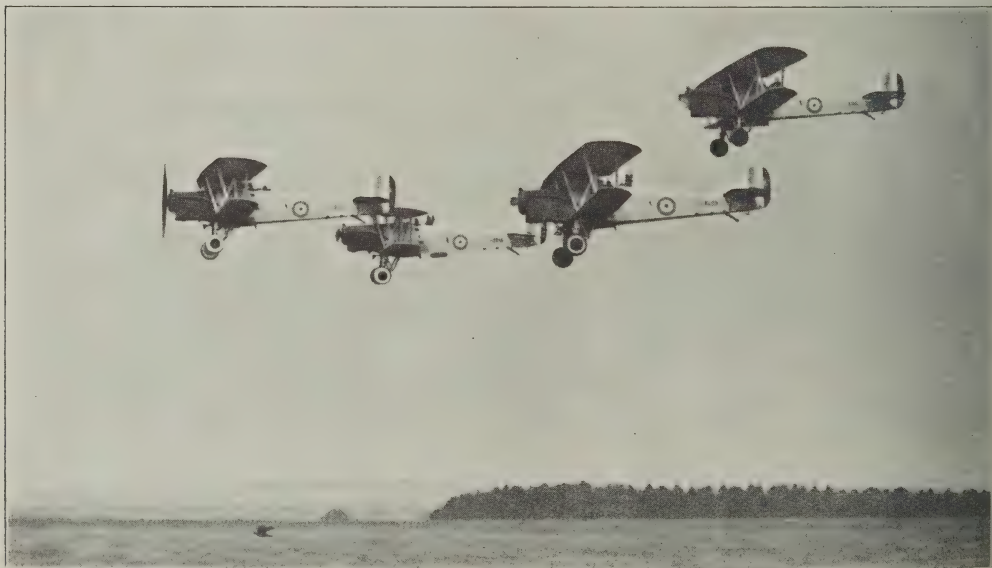
It appears that Miss Lee sailed from America a short time ago with the intention of accomplishing two things. One was to search out sunshine, and the other was to deliver a letter from her friend, Sir Alan Cobham, to Capt. T. A. Gladstone. On her arrival in Cairo Miss Lee came across an old friend, Sir Sefton Branker. He informed her that Capt. Gladstone had already left Cairo, and together they proceeded to Luxor. At Luxor Station she met Capt. Gladstone and was thus enabled to deliver her letter in person.

Sir Sefton Branker suggested that she should accompany them on the continuation of their journey and should come to Kenya. This she agreed to do. On arrival at Khartoum much of Miss Lee's kit had to be abandoned—and, in fact, she left without any of the normal preparations which one would expect for such a journey. During the course of her travels she even ran short of clothes and had to borrow a pair of Jodhpur breeches from Capt. Gladstone!

THE FLIGHT.

The flight from Khartoum was started on Sunday morning and during the course of that day the party proceeded to Malakal where the first night was spent. On the second day a stop was made for a short time at Shambe whilst the night was spent at Mongalla. The following day the machine proceeded to Jinja where a stop was made. From Jinja to Entebbe Miss Lee travelled by car through the kindness of a Mr. McClure. After spending the night at Entebbe the flight was continued to Kisumu, which was reached at about 11.30 a.m., on Thursday, where they were met by Mr. Carbery.

Miss Lee spoke in glowing terms of the very great kindness and hospitality which was extended to them at every place at which they called, and she mentioned that although it had not been expected



THE ANSWER.—A Flight of Hawker Horsley day-bombers (Rolls-Royce Condor engines) commanded by Wing Cdr. J. H. A. Landon, D.S.O., O.B.E., leaving Netheravon on Apr. 21 for a tour of some of the Northern cities of England. The machines and personnel of the Flight have been drawn from No. 11 (Bombing) Squadron, R.A.F. The Flight visited Leeds on Apr. 22, Liverpool on Apr. 23, and Nottingham on Apr. 25. A rival aviator may be seen close to the ground. The progress made recently in developing new types of aircraft for the R.A.F. provides an adequate answer to any question of Oriental attack.

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that a lady would arrive on the machine, better preparations could not have been made even if there had been warning.

At Malakal they were entertained by Mr. Coryton; at Shambe by Mr. Kydd and Mr. Ross, two Government Inspectors of Cotton; at Mongalla by Mr. Brock; whilst at Entebbe they stayed with Sir William Gowers at Government House. Miss Lee made particular mention of some very fine intaglios cut on the concrete walls at Shambe by Sir John Millais, during a short stay there. These portrayed elephants and lions, and Miss Lee remarked that they were magnificent work.

Miss Lee described the journey as one full of thrills and interest. From the flying point of view,—and Miss Lee is qualified to speak, having flown during the last few years with many of the world's most celebrated airmen,—she considers that the route will present but few difficulties and particularly so when the new machines which are being constructed are completed. There are two stretches of rapids at both of which it would be impossible to land; but otherwise there is good landing accommodation all the way. There are miles of forest and sud which are flown over.

CROSSING THE LINE.

Amongst the incidents of the journey she spoke of flying at a hundred feet over a large herd of elephants. Hippo were several times startled and slid smoothly away into the water, whilst crocodiles were seen at Jinja.

One incident of particular interest was the celebrating of the crossing of the Line. Shortly before 11 a.m. Sir Sefton Branker passed a note to Miss Lee suggesting that when the Line was being crossed they must celebrate it, and a few minutes later—at 11 a.m., to be precise—they drank to the God Aëolus in brandy!

Another incident which is worth recording was that whilst in the air Miss Lee passed a note forward saying "There is a special kind of vitality here." The map was carefully studied and then a reply arrived to the effect that the machine had just passed over the Uganda border into Kenya.

At times during the flight the machine flew at 5,000 feet, and it was while flying at that height when only a short distance from Kisumu that they shot upwards quite unexpectedly! It was explained to Miss Lee that they were being pushed upwards on a rising current of air from Lake Victoria.

The time taken over the journey was only about eighteen flying

hours, but they were crowded throughout with interest and enjoyment.

She spoke enthusiastically of the 80 miles motor-car drive from Jinja to Entebbe. In Mr. McClure, to whose kindness she was indebted for the opportunity of this run, she found an excellent guide who was able to point out all the items of interest on the way.

TRIBUTE TO PILOT.

Miss Lee paid tribute to the very fine piloting of Capt. Gladstone, and said that in Mr. Blacklock this enterprise had got the services of an exceptionally fine and willing mechanic. She believes that there is a very great future before the Kisumu—Khartoum Service, and she strongly recommends it to everyone. To use her own words, "I enjoyed every minute of it from the time we left until the time we arrived at Kisumu."

Miss Auriol Lee's many friends in this country and in America will congratulate her on having had the good luck to take part in such an historic flight. It is a just reward for the kindnesses she has shown and the intellectual stimulus she has given to many people concerned with aviation on both sides of the Atlantic. She has never thrust herself into the limelight in connection with flying, though she knows a good deal more about the subject than do many who pose as authorities, so one feels rather like apologising to her for giving so much publicity to this notable performance. But if people will insist on helping to make history they must take the consequences.

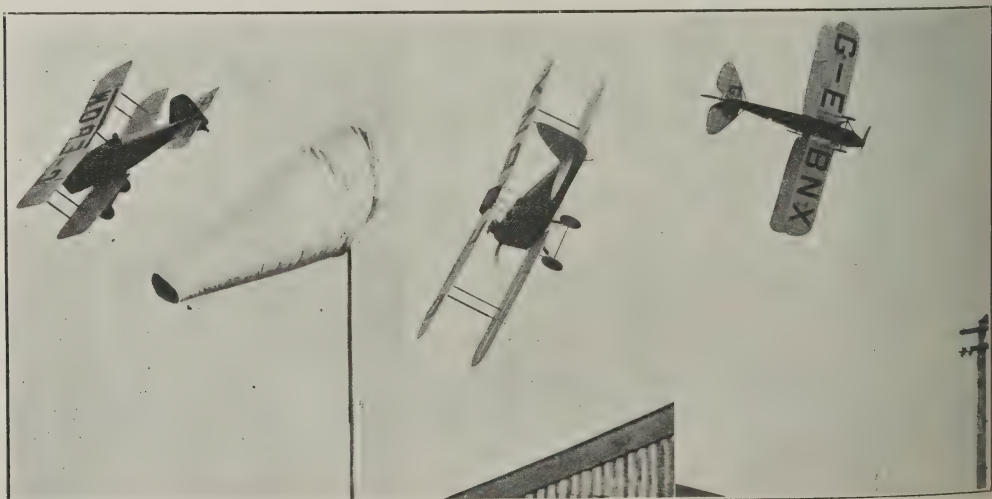
Taking it all round the future of aviation in East and Central Africa looks fairly bright. The frequent traffic of R.A.F. and South African machines in the area, the regular work of the air line which is running Handley Page machines in the Belgian Congo, and now the opening of the Rhodesian-Congo Border survey by the De Havilland-Nimbus machines of the Aircraft Operating Co., which made their first flights last week, must all tend to enlighten the Dark Continent. *Ex tenebris lux* is an old tag. But it may prove true again. And Africa may see the light of aviation even before stay-at-home England is awakened by it.—C. G. G.

APOLOGIES.

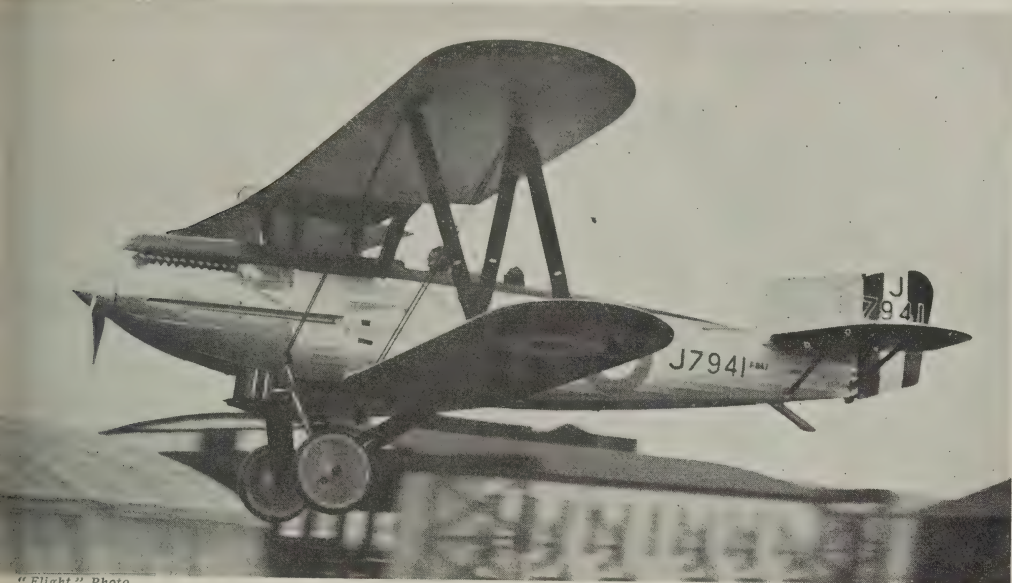
THE AEROPLANE tenders apologies to its readers for an error which occurred in the report of the air racing at Bournemouth and in the list of winners at the Meeting. The statement was made that the race on Good Friday open to members of the recognised Flying Clubs on Club machines was won by Captain Spooner of the London Club, with Mr. Twemlow of the Lancashire Club second and Mr. Craig of the London Club third. The truth is that Captain Spooner was first, Major Beaumont second and Mr. Twemlow third, all on Moths.

One very much regrets this mistake, the more particularly because Major Beaumont who was second, is one of the earliest of the London Club-trained pilots and took up flying at an age when the majority of men give up hunting and take to golf. His performance was therefore all the more creditable. However, one hopes that before long Major Beaumont will win a really important race and that THE AEROPLANE will then be able to give him full credit for his pluck and skill.

One has also to apologise to Flg. Off. A. H. Wheeler for crediting to Mr. Stammers instead of to him the piloting of G-EBQM in the picture of two S.E.5as in the act of starting.



SOME ATTITUDES AT BOURNEMOUTH.—Flg. Off. Wheeler, R.A.F., on S.E.5a QM, and Mr. Sparks, on Mr. Le Roy Irvin's Moth NX, taken from inside and outside the turning point.



"Flight" Photo.

An Impression of the FAIREY "FOX" day bomber,

FAIREY CRAFT

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE ROYAL AIR FORCE.

The London Gazette.

GENERAL DUTIES BRANCH.—R. G. Forbes is granted a S.S. comm. as a Plt. Off. on probation, with effect from and with seniority of Apr. 6.

The following Plt. Offs. are promoted to the rank of Flg. Off.:—E. G. Horden (Jan. 30); T. K. Merrett, J. N. Young (Feb. 18); H. A. Howes, T. O'N. East (Mar. 12); E. J. George (Mar. 18).

The following are transferred to the Reserve, Class C (Apr. 20):—Flt. Lt.—H. J. T. Russell. Flg. Offs.—B. H. Cook, R. V. Weeks. Flg. Off. H. W. Foote resigns his perm. comm. (Apr. 9). Plt. Off. W. I. N. Strong is placed on the retired list on account of ill-health (Apr. 20).

STORES BRANCH.—Plt. Off. P. J. Mote is promoted to the rank of Flg. Off. (Mar. 16).

MEDICAL BRANCH.—The following Flt. Lts. are promoted to the rank of Sq. Ldr.:—T. R. S. Thompson, M.B. (Apr. 17); R. S. Topham, M.B., D.P.H., D.M.R.E. (Apr. 23).

RESERVE OF AIR FORCE OFFICERS.—C. S. Dawson is granted a comm. in Class A.A., General Duties Branch, as Plt. Off. on probation (Mar. 28). The following Plt. Offs. on probation are confirmed in rank:—J. McA. Allan (Oct. 27, 1926); M. J. Berlyn (Apr. 19). Flg. Off. W. J. E. Rodwell is transferred from Class A to Class C (Apr. 14); Flg. Off. L. D. Hamblin relinquishes his comm. on completion of service (Mar. 18).

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—The following to be Plt. Off.:—No. 605 COUNTY OF WARWICK (BOMBING) SQUADRON.—K. D. Foster (Apr. 19).

PRINCESS MARY'S R.A.F. NURSING SERVICE.—Senior Sister Miss C. E. Jenkins is placed on the retired list on account of ill-health (Apr. 20).

The Shanghai Defence Force.

The personnel of No. 2 (Army Co-operation) Squadron, R.A.F., sailed in H.M.T. *Neualla* from Southampton on Apr. 20, as reinforcements to the Shanghai Defence Force.

The Squadron, which is commanded by Sq. Ldr. W. Sowrey, D.F.C., A.F.C., was inspected by Air Vice-Marshal C. A. H. Longcroft, C.B., C.M.G., D.S.O., A.F.C., A.O.C. Inland Area, R.A.F., before embarkation.

On Apr. 19 Air Vice-Marshal Sir Philip Game, K.C.B., D.S.O., Air Member for Personnel, paid a farewell visit to the Squadron at Manston.

The Service African Tour.

The R.A.F. Flight under Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., which is flying from Cairo to the Cape and back, arrived at Cape Town at noon on Apr. 21.

The Flight landed at Wynberg Aerodrome and was welcomed by representatives of the Governor-General, the Union Defence Force and by the Mayors of Cape Town and Wynberg.

The Staff College, Quetta.

The following officer of the R.A.F. has recently graduated at the Staff College, Quetta:—Flt. Lt. S. B. Harris, D.F.C., A.F.C., R.A.F.

A Parachute Escape.

The following statement was issued by Scotland Yard on Apr. 22:—

At 2.30 to-day a military aeroplane, piloted by Flight Lieutenant Greig, from Kenley Aerodrome, crashed in a field at Court Farm, Warringham.

The flying officer jumped out in a parachute and landed near Warringham without injury. The machine burned itself out. Purley Fire Brigade and ambulance were in attendance.

Flt. Lt. D. D'A. A. Greig, D.F.C., is at the C.F.S., Wittering, posted for Air Pilotage Duties.

Apparently the machine got into a spin at a considerable height, and the pilot, after fighting with it for some thousands of feet, left it by parachute at about 4,000 feet from the ground.

So far as can be learned it did not catch fire in the air. Therefore the assumption is that a control jambed or broke.



A Fatal Accident.

The Air Ministry regrets to announce that as the result of an accident at Eastchurch, Kent, to a Vickers Virginia machine of No. 9 Squadron, Manston, on Apr. 19, Flg. Off. William James Kelly, the pilot of the aircraft, Plt. Off. John Frederick Dowdeswell, No. 134932, F.S. Albert George Alderton, and No. 157294 AC.2. Everett Daniels, were killed.

Apparently the machine was damaged in taking off by fouling another machine which was standing on the aerodrome. When the pilot discovered the damage he tried to land and stalled and the machine caught fire.

At the Coroner's inquest at Eastchurch on Apr. 20, a witness said that the right wing-tip of the Virginia struck the left wing-tip of the standing machine. He noticed a strut of the Vickers machine hanging down after the impact, which caused the machine to swing to the right.

The pilot was then climbing. He throttled his engine and his right wing dropped and the machine nose-dived. It was then at a height of about 100 ft. He thought the controls might have been jammed. The jury returned a verdict of "accidental death."

Alcohol in the Air Force.

The following extract from a letter written by an R.A.F. officer abroad seems to put in a condensed form the position of the Air Force in relation to Alcohol:—

"By the way, re the 'Air' discussion,—couldn't you explain that pilots don't take alcohol before breakfast? Few would take it with their breakfast!—and after breakfast people go off to their flight sheds to work, and fly, and don't get back to the mess till lunch.

"I can't guarantee that they have consumed no 'alk' prior to any afternoon flying that they may do. But the old war idea of taking a nip before flying is really a scream! The fellow who suggested it ought to go and live in any R.A.F. mess for a couple of days.

"He is two years, and one war, out of date. And the people who did it in the War were very limited. 'I speaks as knows.' There were more good pilots ruined through over-smoking of cigarettes than ever there were by drink. I shall get heated if I go on!"

R.A.F. SPORTS AND PASTIMES.

Boxing.

The Annual Boxing Match between the Champion Unit of the Army and the Champion Unit of the R.A.F. for the Cup presented by Sir Philip Sassoon was fought at the Territorial Drill Hall, Gravesend, on Apr. 13, and resulted in a win for the 2nd Batt. Loyals by six bouts to Henlow's five.

The Loyals' team included the Army and I.S.B.A. Champions and they put their strongest men in the first half of the programme with the result that at the interval they were leading by five bouts to one. In the second half Henlow won four fights in succession and two extra welters had to be put on to decide the match. L/Sjt. Mitchell was selected for the Loyals and AC. Bristow for Henlow. The fight lasted three rounds, in the course of which Bristow felled his opponent three times before it was awarded to the Loyals.

The results were:—

OFFICERS.—Heavy: Lieut. Thomas beat Flg. Off. Slocombe. **Welters:** Lieut. Cainer beat Flg. Off. Colquhoun. **Lights:** Lieut. Huxham beat Flt. Lt. Bird.

OTHER RANKS.—Heavy: AC. Watts beat Pte. Barber. **Light-heavy:** AC. Munkley beat Sgt. Cook. **Middle:** Pte. Sykes beat L-AC. Robinson. **Welters:** L-AC. Wood beat Pte. Taylor, L/Sjt. Mitchell beat AC. Bristow.

The Women's Royal Air Force.

The Fourth Annual Dinner of the Women's Royal Air Force will be held at the Victoria Mansions Restaurant, 21 Victoria Street, S.W., on Apr. 30, at 7 p.m.

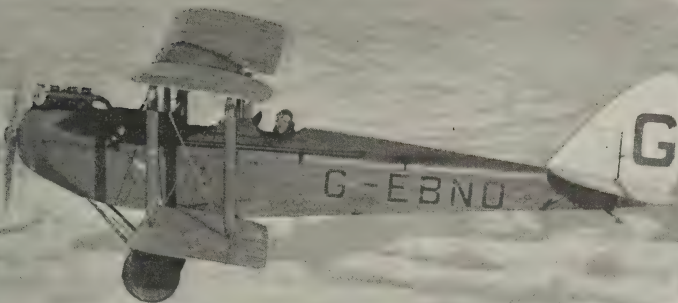
Dame Helen Gwynne-Vaughan, D.B.E., President of the Old Comrades' Association, will be in the Chair, and Air Marshal Sir John Salmond, K.C.B., C.M.G., C.V.O., D.S.O., A.D.C., Air Officer Commanding Air Defences of Great Britain, will be the chief guest.

Application for tickets (6s. each) should be made to the General Secretary, W.R.A.F. Old Comrades' Association, 5, Buckingham Gate, S.W.1.

THE R.A.F. IN 'IRAQ.—HOCKEY

TEAM: This team drew with the Army in 'Iraq in the last of the Inter-Service games. Left to right, back row—AC. Skinner, Flg. Off. Bryant. Flt. Lt. Traill, Sq. Ldr. Vaisey, Flt. Lt. Freehill, Sgt. Fursman, L-AC. Turton. Front row—AC. Clarke, AC. Fisher, L-AC. Devereaux, AC. Cassidy.

"AS CHEAP AS A CAR TO RUN AND MAINTAIN AND CHEAPER THAN MANY TO BUY."



THE DE HAVILLAND M O T H

ENGINE - 30-80 H.P. CIRRUS

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READY TO FLY AWAY.

"THE safety of training on the De Havilland 'Moth' type of aeroplane is amply demonstrated by the latest figures issued by the Australian Aero Club, N.S.W. Section, which read as follows:—

Hours flown.....	440 h. 25 m.
Miles flown	26,400
Pupils passed out.....	11
Pupils under instructions	6

Two lady members of the Club are progressing very favourably with their training and no accidents whatever have occurred to pupils during instruction or after going solo."—*Extract from Official Report.*

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PAYMENTS
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THE PROGRESS OF CIVIL AVIATION IN BRITAIN.

The Annual Report of the Directorate of Civil Aviation which has just been published deals with the events of the year ending Dec. 31, 1926, instead of the official financial year ending Mar. 31 as has hitherto been customary. Presumably the change is due to a desire that the report should be available at about the same time as the Air Ministry Estimates are published.

In addition there has been some change in the nature of the statistical tables of traffic, etc., which are on the whole an improvement—particularly as statistics for previous years have been reduced to the same basis.

IMPERIAL AIRWAYS.

The Continental services operated by Imperial Airways Ltd. show a steady increase in traffic. The actual machine mileage flown during 1926 was 722,980, somewhat less than the figure for 1925. This decrease is due to the use of larger machines, for the "horse-power-miles" on which the subsidy is based increased from 421,154,575 in 1925 to 549,139,440 in 1926.

The total number of passengers rose from 11,193 in 1925 to 16,775 in 1926, a figure which beats the previous peak year of 1923, when 15,552 were carried. Translated into passenger miles, the 1926 figure was 3,746,995 against 2,645,275 for 1925.

If the figure of h.p.-miles is divided by that for passenger miles the result is a figure of h.p. per passenger. This figure for 1926 is 146, for 1925 it was 158 and in 1924 it was 147. This indicates that although the use of multi-engined machines had tended rather to increase the power installed in relation to the full load capacity of machines, the increase in traffic has compensated for this effect, and the h.p. per passenger carried has rather decreased than otherwise.

As presumably the increased power-reserve of the new machines leads to their engines running at reduced power, this result suggests that there has been a fall in both fuel consumption and in engine upkeep cost per passenger mile.

[In addition there is the fact that whereas the machines used in 1923-24 were running their engines full-out the whole time, the big three-engined, and higher-powered twin-engined machines of to-day are running with their throttles half closed. So the power actually used per passenger is considerably less and the danger of engine breakdown is less still.—C. G. G.]

Cargo—which now includes excess luggage—increased to 679 tons from 550 in 1925. This figure does not include bullion and coin which are returned under a separate heading.

For some reason the total machine mileage by British aircraft on regular transport service is given in one table as 840,000. This is 107,320 in excess of the total given elsewhere for Imperial Airways' services. So far as is known there is no other British firm which operates a regular transport service, and it would be interesting to discover what this very respectable volume of flying really represents.

REGULARITY OF SERVICE.

The regularity of Imperial Airways' services is given—for the first time—as the percentage of scheduled flights completed. In the year under review 85 per cent. of scheduled flights were completed without interruption, and 90 per cent. were completed either with or without interruption. On the basis previously used the figures are 93 per cent. of flights started and completed without interruption, and 99 per cent. eventually completed including interruptions. These figures are somewhat better than those of previous years.

The total number of flights scheduled in 1927 was 4,374. Of these 374 were cancelled and 4,000 were actually started. This figure excludes 80 special flights not covered by the schedule.

INVOLUNTARY LANDINGS.

Of the total of 4,000 flights started, 300 were interrupted by involuntary landings. 148 of these landings (49 per cent.) were caused by weather and 99 (33 per cent.) by engine or installation failure. The causes of the remaining 53 (18 per cent.) involuntary landings are not disclosed.

Thus about one flight in forty was interrupted by engine or installation trouble. This result seems at first sight to be worse than the corresponding figures for previous years, but in fact it is not strictly comparable.

The use of more than one engine per machine may be expected to increase the frequency of engine troubles. But on a machine which can fly with one engine disabled, an engine failure will not "force" a landing as it would on a single-engined machine. The pilot flying such a machine who suffers an engine failure will continue to fly to the first convenient landing ground and will there seek to remedy the defect. Such a landing may properly be described as involuntary but it is a matter very different from the "forced" landing of a machine which cannot continue to fly after an engine breakdown.

THE BRITISH SHARE OF CROSS-CHANNEL TRAFFIC.

The total number of passengers carried across the Channel by air lines of all nationalities in 1926 was 25,224. Of these 15,450 or 61 per cent. were carried by British aircraft. The corresponding figure for 1925 was only 51 per cent., and that for 1924 59 per cent.

GOODS AND GOLD.

£958,237 worth of goods were imported and £966,003 exported by air in 1926. The imports by air in the previous year were some £200,000 greater, but this is offset by an increase in exports in 1926 of £560,000. These figures do not include bullion and coin carried by air. Imports in this category in 1926 were £307,525 and exports £2,075,973. This shows a small increase in imports and a drop of nearly £2,000,000 in exports compared with 1925.

ACCIDENTS ON REGULAR AIR LINES.

No accident leading to death or injury of either passengers or crew occurred on Imperial Airways. One of their machines was forced down in the Channel and became a total loss after the rescue of crew and passengers. This is the first time that such an accident had occurred to a British air-line machine.

There were however two serious accidents to foreign air line machines in England leading to a total of eleven deaths. In one the pilot,

attempting to land owing to poor visibility, fouled the roof of a farm building and crashed. In the other a broken connecting rod and the resulting vibration caused a leak in a wing tank, the escaping petrol caught fire, the pilot pulled the rip panel on the tank to empty it, and a sheet of flame partly destroyed the tail surfaces of the machine, which crashed and was completely destroyed by fire. [Which shows the folly of the rip-panel and the superiority of the American method of dropping the whole tank.—C. G. G.]

JOY-RIDING.

Flying other than on organised transport services showed a marked increase during the year. Flying for hire, which is mainly "joy riding," shown by the returns voluntarily made by certain firms amounted to 215,000 machine miles, and a total of 81,909 passengers. This brings the total number of recorded paying passengers in this country since 1919 up to nearly 400,000, and there have certainly been many unrecorded passengers.

In the matter of accidents, the statistics of this class of flying are not so good as in previous years, but they are apt to be misleading. The actual figures show that two pilots and two passengers were killed and one passenger was seriously injured by accidents to machines belonging to joy-riding concerns. As a matter of fact no paying passenger was concerned in any of these accidents.

In one case a machine belonging to Mr. Peck crashed while on a journey when it was not flying for hire. Mr. Levy (the pilot), a mechanic and a woman passenger were killed. In the other case Mr. Bigg-Wither, the pilot, was killed and the owner, who had been giving an exhibition of wing walking, was injured, and a friend of his, Mr. Barrett, jumped out as the machine hit the ground and was uninjured.

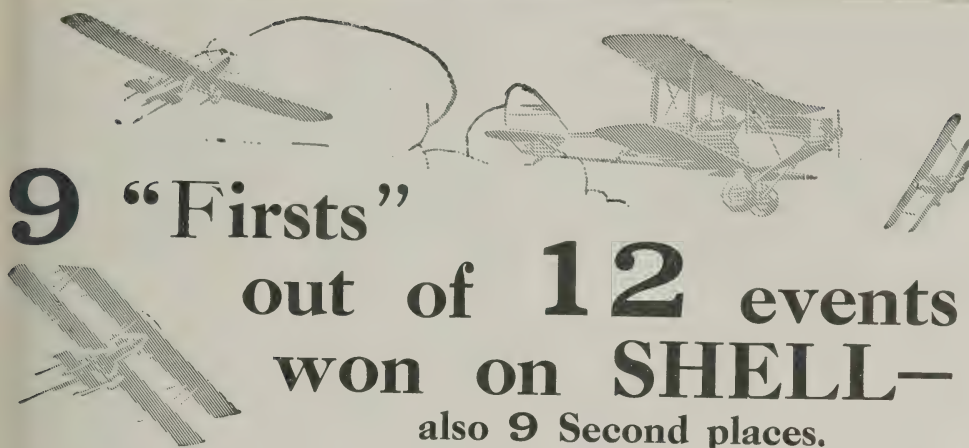
In addition to these fatalities a young woman was attempting a parachute descent and the line from the parachute to the harness became detached, so that she fell without the parachute (which stayed in the machine); in another instance a man jumped out of a machine (the official report says that he fell out); and a child spectator was killed by the airscrew of a joy-riding machine on the ground. So, in fact, no paying passenger was killed in a joy-ride crash.

THE FLYING CLUBS.

The five flying clubs approved by the Air Ministry during 1925 continued their activities in 1926, and were joined in May, 1926, by a sixth—the Hampshire Club. The total membership of the six approved clubs at the end of the year was 1,058, of which number about 600 were



A £3,000 WINNER.—Mr. Bulman at Bournemouth, on the Hawker Cygnet (Bristol Cherub) which won "The Daily Mail's" First Prize at Lympne last September.



9 "Firsts" out of 12 events won on SHELL— also 9 Second places.

By this sweeping triumph at the Bournemouth Easter Flying Meeting, Shell Petrol once again demonstrated its unchallengeable supremacy.

The following firsts were obtained on Shell:

BOSCOMBE STAKES. D.H. Moth. London Aero Club. Capt. F. G. M. Sparks.

CHRISTCHURCH HANDICAP STAKES. D.H. Moth. London Aero Club. Capt. H. Spooner.

ENSBURY PARK STAKES. Hawker "Cygnet." R.A.E. Aero Club. Flying Officer R. L. Ragg.

BRANKSOME CIRRUS HANDICAP STAKES. D.H. Moth. Capt. G. De Havilland, Owner.

WINTON HANDICAP. Hawker "Cygnet." R.A. Aero Club. Flying Officer R. L. Ragg.

BOURNEMOUTH AERIAL "OAKS" HANDICAP. D.H. Moth. London Aero Club. Miss O'Brien.

HOTELS AND RESTAURANTS ASSN. HANDICAP STAKES. Avro "Avian." Highcliffe Hotel. Bert Hinkler.

"KILL JOY" TROPHY AND STAKES. Avro "Avian." Bert Hinkler, Owner.

HOLIDAY FINAL HANDICAP. Avro "Avian." Bert Hinkler, Owner.

The following seconds were obtained on Shell:

BOSCOMBE STAKES. D.H. Moth. Hampshire Aero Club. Flt.-Lt. G. L. Thomson.

POOLE HANDICAP. D.H. Moth. Capt. G. De Havilland, Owner.

CHRISTCHURCH HANDICAP STAKES. D.H. Moth. London Aero Club. Major K. M. Beaumont.

BRANKSOME CIRRUS HANDICAP STAKES. D.H. Moth. De Havilland Aircraft Co., Ltd. Capt. H. S. Broad.

BOURNEMOUTH HIGH POWER HANDICAP. Avro "Lynx." A. V. Roe, Ltd. Flt.-Lt. N. Comper.

WINTON HANDICAP. G.L.A.4. Felixstowe Aero Club. Flt.-Lt. N. Comper.

BOURNEMOUTH AERIAL "OAKS" HANDICAP. D.H. Moth. Flt.-Lt. Bell. Mrs. J. R. Bell.

"KILL JOY" TROPHY AND STAKES. D.H. Moth. Capt. G. De Havilland, Owner.

HOLIDAY FINAL HANDICAP. Avro "Avian." R.A.E. Aero Club. Flt.-Lt. J. A. Gray.

SHELL

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flying members. 97 members of these clubs were qualified pilots, 55 of them having been trained by the clubs.

The members made 2,957 solo flights and 5,777 flights under dual instruction, totalling 2,976 hours of flying during the year. In addition club instructors made 1,918 flights of 256 hours duration other than instructional flights. During the strike of May, 1926, 172 hours were flown by club machines on transport services.

Besides these approved and subsidised clubs, six independent flying clubs are in existence, and the total number of aeroplanes registered as the property either of clubs or private owners at the end of the year was 58.

Two fatal accidents occurred in the course of club flying during the year, but in no case was the victim a pupil under instruction. (One was Major Packman at Newcastle and the other was Mr. Michie, the London Club ground engineer, who was Mr. St. Barbe's passenger.)

R.A.F. RESERVE TRAINING.

Flying training by officers of the R.A.F. Reserve is done at civilian schools, and consequently is treated as a branch of Civil Aviation. Five such establishments are in operation:—The de Havilland, Bristol, Beardmore, Armstrong-Whitworth, and North Sea and Aerial Transport Co.'s schools.

These between them completed 362 training courses. In addition 31 officers were taught to fly *ab initio* by the Bristol and de Havilland schools.

No fatal accident, nor any serious injury to officers under instruction or instructors occurred in this branch of flying.

[One seems to remember an officer-pupil being killed near Bristol and an instructor being killed at Coventry.—T. G. G.]

SURVEY, PHOTOGRAPHY, ETC.

The value of aerial surveying and photography has been increasingly recognised, and there is now no doubt that aerial survey will be able to pay its own way. The more important undertakings in this field by British concerns have been undertaken out of Britain, but there is an increasing demand for survey and photography in this country.

Aerofilms Ltd. report an increase of 20 per cent. in the hours flown for photographic work during the year under review. Their work included a survey of 15 square miles of industrial country for the Rural District Council of Doncaster. The District Surveyor reports that in transferring the results to the 1/2500 Ordnance Maps better accuracy was attained than would have been secured by the usual ground method, and that both time and money were saved by aerial photography.

LICENCES AND CERTIFICATES.

137 new licences (A and B) were issued to pilots during the year, leaving a total of 286 such licences in force at Dec. 31. In other words, nearly half the pilots licensed at the end of the year were new pilots—a result largely due to the work of the Flying Clubs.

Six new licences for navigators were issued in 1926 and ten such licences were valid at Dec. 31.

The number of new licences for ground engineers issued in the year was 69, and the total number of current licences at the end of the year was 360.

The total number of aeroplanes and seaplanes registered in Britain at the end of the year was 268. Of these 104 were new registrations during the year.

236 certificates of airworthiness for heavier-than-air craft were valid at this date, and of these 155 were new during the year. The total number of C. of A.s includes 69 certificates granted to machines known to have been sold abroad, so that apparently not more than 199 machines in this country were officially "airworthy" at Dec. 31, 1926.

The report states that 226 registered machines were in civil employment at this date, and that a further number of experimental types were in the hands of constructors. Presumably "employment" here means being in the possession of active flying concerns, for at least seventeen of these machines can have had no C. of A.

Fifteen lighter-than-air craft were registered at Dec. 31, but only one possessed a C. of A.



AVRO'S LATEST.—Mr. Bert Hinkler on the Avian (Cirrus Mk. II) at Bournemouth.

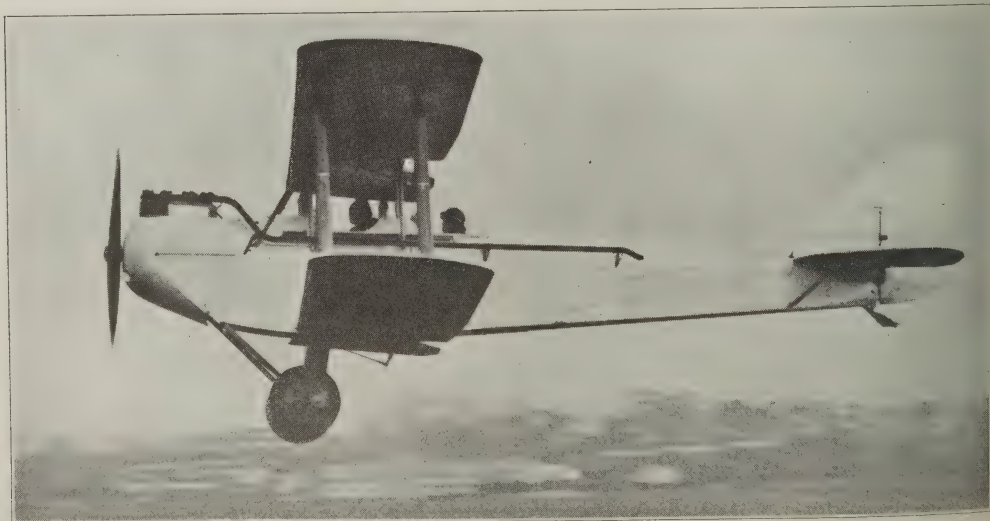
New licences for aerodromes to the number of 148 were issued during the year. The majority of these were temporary licences for joy-riding purposes, and only forty-one were in force at the end of the year.

Of these forty-one, five refer to Government-owned aerodromes, eleven to privately-owned aerodromes available for public use, and twenty-five were joy-riding fields.

THE INVESTIGATION OF ACCIDENTS.

As will have been gathered, a number of serious accidents involving British civil aircraft occurred during the year. Thirteen accidents were investigated under the terms of the Air Navigation Regulations. Eight of these involved loss of life, and a total of fourteen people were killed.—Which is a record for Civil Aviation, and may be taken as indicating a notable increase in the amount of flying.

Only four of the fatal accidents however were cases of an aeroplane crashing. (The two "joy-ride" crashes and the two Club crashes.) The most serious accident of all was the accident to a captive balloon near Bedford, which killed the pilot and four passengers. The case of the parachutist who was killed because her parachute did not open, that of a passenger who fell out of an aero-



A MAKER OF CIVIL AVIATION.—A De Havilland Moth (Cirrus Mk. II). This machine was recently flown to Germany by Mr. Broad, where it was presented to the Deutscher Sportflieger Klub by Herr Bercowitz.

TITANINE

THE WORLD'S PREMIER

DOPE



Titanine Doping Schemes are employed on the majority of Aeroplanes constructed in this country and have been adopted by many Governments and Aircraft Manufacturers in various parts of the world.

Special Doping Schemes for Light Aeroplanes will be forwarded on request.

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plane during a loop because his belt was unfastened, and of the onlooker who was killed by the revolving airscrew of a joy-ride machine are among those which were not due to crashes, and none of these have anything to do with the safety of the aeroplane as a vehicle.

The four remaining accidents leading to fatal results were all of them the result of stalling too close to the ground for recovery, and reveal no novel features.

Apart from the victims of the balloon accident only one of the victims of the above accidents appears to have been a fare-paying passenger.

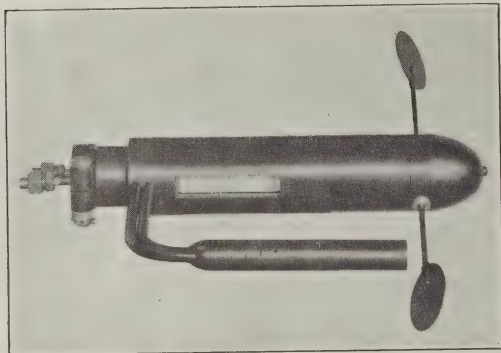
The two accidents to foreign aircraft which were mentioned above are not included in those considered above.

AN AIR TAXIMETER.

Mr. C. H. Colvin, General Manager of the Pioneer Instrument Co. Inc., of Brooklyn, New York, writes to *THE AEROPLANE*—*apropos* a note in the issue for Feb. 16 which suggested that in the future air-taxis may be fitted with some form of taximeter—to mention that the Pioneer Company have actually made recording air-mileage meters—or “Air-logs” since 1919.

The Pioneer Air-log consists of a small wind-mill of the screw type mounted on the aeroplane, and rotated by its passage through the air. The number of revolutions made by such a screw will be proportional to the distance travelled through the air, provided that the friction of the wind-mill bearings is small enough to be negligible.

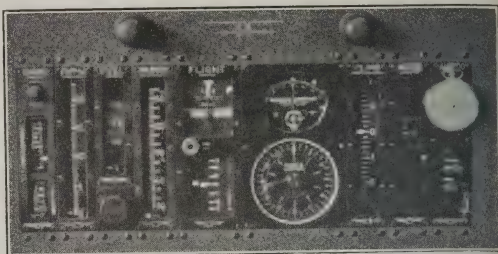
At the high speeds attained by all aeroplanes this condition can fairly easily be fulfilled, and such a “log” will give a very accurate measure of the air distance travelled by an aeroplane.



In the Pioneer Air-log the wind-mill is mounted on a strut, in a position as free from the effects of interference as possible.

Two types of log are made. In one the wind-mill drives a counting train of the cyclometer type directly, and the mileage is shown at a window in the instrument case on the strut.

In the other type the counting train opens a small air valve at every mile. This valve connects a dash-board indicator to a Venturi tube, and causes the counter dial on the dash to move forward one unit at each opening. The indicator for this type is provided with a trip recorder which



THE AIR TAXIMETER.—A Pioneer Instrument Board, with the taxi indicator in the right bottom corner.

can be set to zero whenever desired as well as a total mileage indicator.

Photographs which are reproduced show a complete air-log of the first-named type, combined with a pitot-static head for an ordinary air-speed indicator, and a Pioneer dashboard installation with an air-mileage indicator dial mounted on it.

OPPORTUNITIES IN SOUTH AMERICA.

From time to time the progress of the great Pan-American flight by Loening Amphibians of the U.S. Air Corps has been chronicled in *THE AEROPLANE*. At the present moment the three remaining machines of these which started are on their way home to the States, and there is no doubt that this demonstration of the efficiency of American aircraft has made a great impression on the South American nations.

Primarily the flight was intended to increase the prestige of the United States in South America and to promote friendly feeling among the aviators of the two Americas. It was in fact a journey for the purpose of what the British Navy calls “Showing the Flag.” But it has had the secondary effect of promoting trade in South America for the benefit of the American Aircraft Industry.

On this subject an Englishman at present resident in Brazil writes:—

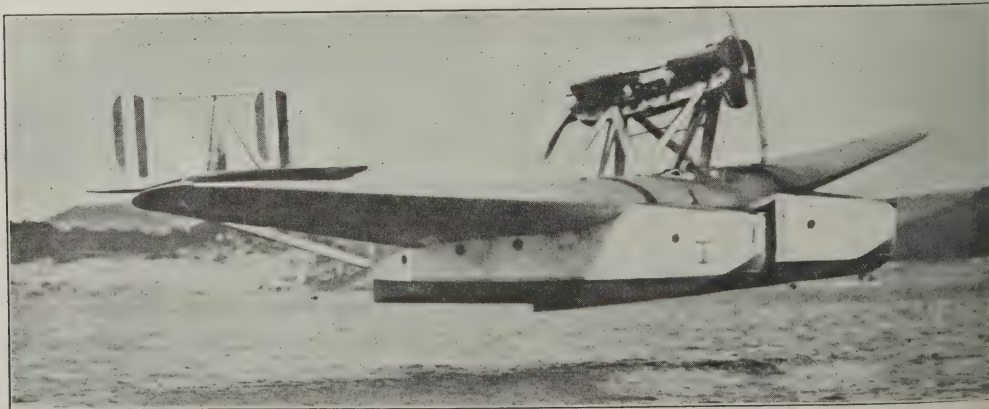
Is there not in this great Pan-American flight a lesson that Great Britain might take to heart? Could not we also show our Flying Standard in South America? It is probably the finest market left in the World from the British point of view. Naturally no Government will buy aircraft from catalogues and pamphlets. They require to see the goods before purchasing them.

There is no reason why the British Aviation firms should not obtain their fair share of orders from the South American Government. One enterprising firm, The Blackburn Aviation and Motor Co., of Leeds, have sent a sample plane to Brazil, which we hope and believe will result in establishing a solid and lasting market for that firm in South America.

Other Nations are quite alive to the necessity of exhibiting the actual machines to possible purchasers. During the last five months, the French and Italians have sent one aeroplane each, the Germans two, and the Americans three to South America, while there is one sole representative of a British firm.

The enormous amount of interest taken throughout Latin-America in the Pan-American flight cannot but make us aware what a future there is for aviation in South America.

Here is a lesson which might well be taken to heart by the British Aircraft Industry. Many people will remember that soon after the end of the War 1914-18 several British firms made strenuous efforts to get business in South



“SANTA MARIA.”—The Savoia 55 (two Isotta Fraschini Assos) flown by Col. the Marchese di Pinedo, leaving Galveston, Tex.

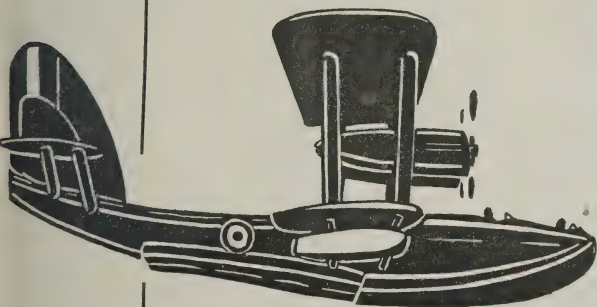
SHORT

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AEROPLANES
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*As Britain's
best, they lead
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



D.H. "MOTH," fitted with "CIRRUS" engine.

RELIABILITY.

Participating in Race Meetings which extend over 3 days, such as the Bournemouth Meeting, imposes the maximum strain on engines, which are run at full throttle for considerable periods.

Although not built for racing, "CIRRUS" engines have proved themselves well able to stand up to such arduous work.

This had already been proved by the King's Cup Air Race, 1926, having been won by a D.H. "Moth" (pilot, Capt. H. S. Broad), fitted with a "CIRRUS" engine.

During the two days allocated to this race, the "CIRRUS" engine was run at full throttle for 16 hours.



SHORT "MUSSEL," fitted with "CIRRUS" engine.

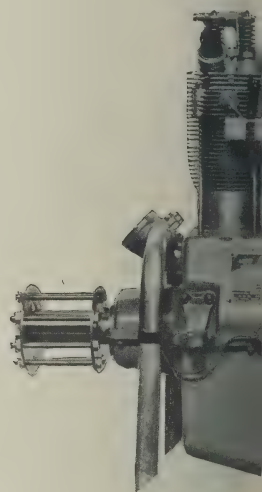
BOURNEMOUTH

FIGURES THAT S

11 FIRSTS GAINED BY

15 SECONDS

12 THIRDS



30/80 h.p.



OUT OF
WERE FITTED

There was a special race for m
BRANKSOME "CIRRUS" HAND

Full particulars of "C

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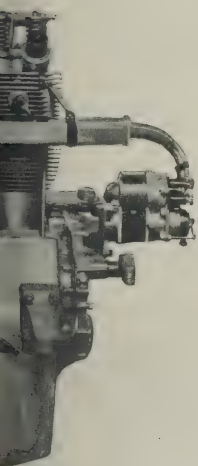
ACE MEETING.

OR THEMSELVES

" ENGINED MACHINES.

” ”

” ”



MARK II.

ES 83
US " ENGINES.

with "CIRRUS" engines (THE
which attracted 14 ENTRIES.

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EROYDON.

SPONDING WITH ADVERTISERS.



AVRO "AVIAN," fitted with "CIRRUS" engine.

Previous "CIRRUS" Achievements.

LONDON TO INDIA, 2 machines,
5,500 miles.

1st KINGS' CUP AIR RACE, 1926.

1st AUSTRALIAN AIR DERBY, 1926.

2,000 MILES PERTH TO MEL-
BOURNE.

LONDON — ZURICH — LONDON

LAND'S END TO JOHN O' GROATS.

TOUR OF BRITISH ISLES, 1,000
miles.

"CIRRUS" engines HAVE BEEN SUPPLIED TO :—

12 COUNTRIES,

THE 7 ENGLISH LIGHT AEROPLANE CLUBS,

THE ROYAL AUSTRALIAN AIR FORCE,

THE AUSTRALIAN AERO CLUBS,

THE IRISH FREE STATE AIR FORCE,

and

HAVE FLOWN OVER ONE MILLION MILES.



WESTLAND "WIDGEON" III, fitted with "CIRRUS" engine.

Cables :
"Airdisco, London."

America. Representatives were sent to practically every country, but, as the writer of the letter points out, one cannot sell aeroplanes from catalogues.

It is true that some firms have done quite fair business in the Argentine Republic and in Chile, and that recently A.D.C. Aircraft Ltd. have done business with the Bolivian Government. But on the whole we have not done the amount of business which we might have done if more strenuous efforts had been made.

Naturally, some people will argue that the right thing to do would be for the Royal Air Force to send machines, presumably big flying-boats, to pay official visits to the various South American nations. But, unfortunately, the Air Force, with its strictly limited amount of money, cannot indulge in cruises on the scale of the British Navy.

Personally one believes that by far the best scheme would be for several firms to send a co-operative mission round the South American nations, and to equip that mission with machines of non-competing types.

Apart from the Americans, a great deal of good work has been done by other nations.

First of all, German commercial enterprise sent a Dornier Wal and a Junkers to Brazil, both claiming that they had received concessions from the Brazilian Government and intended carrying vast quantities of passengers and loads of gold and diamonds up and down the Brazilian coast. Actually they had no monopoly or concession of any sort and their activity has subsided into occasional joy-rides of a couple of hundred miles each way, for which the travellers pay handsomely. And even though their early hopes have not been fulfilled, they have at any rate provided excellent propaganda for German products.

After them came the Marchese de Pinedo, who, though he misfired somewhat over his cross-Atlantic flight, received a great reception when he did arrive on his Savoia, and thereby gave a big fillip to Italian aviation.

And last of all came the Americans who, in spite of the tragic accident at Buenos Aires, had an excellent effect in Brazil and in fact all over South America.

The South Americans like the English, and they like English manufacturers, what they know of them, but they will not buy purely as speculations. If the British Aircraft Industry could arrange a co-operative mission there would be no question of the firms cutting one another's throats. There is plenty of room for them all in South America. But it certainly is a pity to hand over the best remaining market for aviation in the World to the French, the Germans, the Italians and the Americans.—C. G. C.

THE PAN-AMERICAN FLIGHT.

On Mar. 10 the three remaining Loening amphibians of the Pan-American Flight, the *San Antonio*, *San Francisco*, and *St. Louis*, arrived at Rio de Janeiro from Santos thus completing the third stage of their flight round South America.

On Mar. 18 they left Rio de Janeiro and after a stop at Victoria, 250 miles north of Rio, for re-fuelling, arrived at Bahia the same evening.

On Mar. 19 they attempted to get through to Pernambuco but were forced down at Porto de Pedras by darkness.

On Mar. 20 they continued to Pernambuco and after a six-hour stay flew on to Port Natal where they arrived the same evening. During this portion of the flight they passed Lieut.-Col. Sarmiento Beires, the Portuguese pilot, who was flying southward to Pernambuco.

On Mar. 21 they flew from Port Natal to Para, a distance of 1,100 miles in a day, with only one stop of one hour at Sao Luiz de Maranhao. The *San Antonio* encountered stormy weather and flew the entire distance 15 feet above the sea checking its position by lighthouses.

On Mar. 25 the three machines flew from Para to Cayenne, French Guiana, a distance of 500 miles.

On Mar. 26 they flew to Paramaribo, Dutch Guiana.

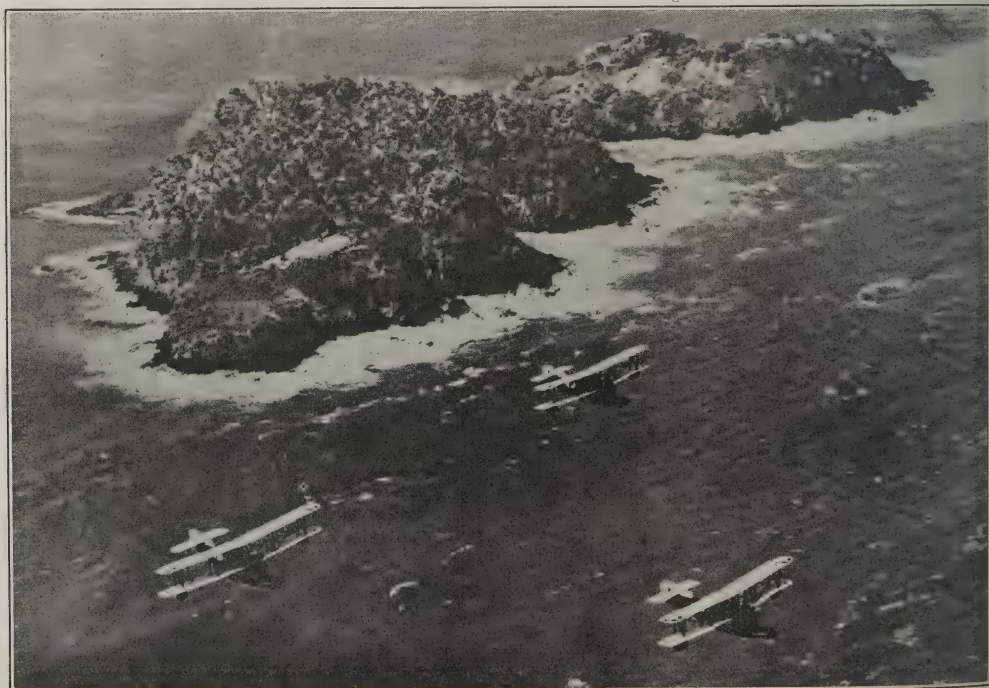
On Mar. 27 they proceeded to Georgetown, British Guiana. Major Dargue, the commanding officer, said that the signs of civilisation in British Guiana were very welcome after so long a flight over jungles and swamp lands. The pilots were received by an enthusiastic crowd and welcomed by Government officials and consular representatives. Their machines were well groomed by the Real Daylight Balata Co., who have a slipway and shed at Georgetown to house their Fairey III ambulance seaplane.

On Mar. 28 the three machines continued to Port of Spain, Trinidad.

On Mar. 30 they flew to Puerto Cabelo, near Caracas, Venezuela. Here they were met by Lieuts. Whitehead and Weddington, who had proceeded ahead of the expedition to fetch a new machine from Panama to replace one of the machines wrecked at Buenos Aires on Feb. 20.

On Apr. 4 the four machines returned to Port of Spain, Trinidad, for a complete overhaul preparatory to starting on the last stage of the flight.

The balance of the flight is by way of Grenada, St. Vincent, Martinique, Guadalupe, the Dominican Republic, Haiti, Port Rico, Cuba, and thence to Miami, Florida, and up the east coast to Washington, D.C., where they expect to arrive on May 1.



NO PARKING HERE.—Three Loening Amphibians of the Pan-American Flight flying over typical islets off the South American coast. Land and sea look equally inhospitable.

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Aircraft Equipment

The finest aircraft may fail in its purpose if its equipment is unsatisfactory

The several items which will form the subject of this series of announcements are confidently recommended to the consideration of all Aircraft Designers, Manufacturers and Users, and to all concerned in the equipment of Air Organisations

LIGHTING EQUIPMENT FOR AIRCRAFT.

The new light pattern Vickers - Davis (patented) Navigation Lamps with Plug and Socket Mountings, together with the Vickers wind-driven 12-volt Generator, Combined Voltage Regulator and Cut-out, Switch Box and Accumulator, meet all requirements for night-flying equipment as laid down by the International Air Convention, 1919, and provide an installation of much lower weight than formerly has been available.

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AN AIR PAGEANT OVER THE ICE.



AVIATION IN FINLAND.—The new single-seat fighter (Bristol Jupiter engine) built in the Finnish National Aircraft Factory.

THE AEROPLANE is indebted to Major Jack Stewart, of A.D.C. Aircraft Ltd., for a very interesting account of an aerial demonstration which took place over the ice at Helsingfors on Mar. 25. In its environment the event was probably unique in the history of aviation. The demonstration was in fact an Air Pageant arranged more or less on the lines of the R.A.F. Display at Hendon. The Display was held in March because in the Summer there is no land aerodrome anywhere near Helsingfors, whereas in the Winter the Finnish Air Force have a magnificent aerodrome consisting of the frozen sea around the city of Helsingfors.

For use on ice the machines are fitted with skis, but in the Summer wheels are used and the machines have then to be sent to the nearest land aerodrome, which is about 100 kilometres inland. Those machines which are not sent inland are fitted with floats instead of skis and continue to use the sheds at Sandhamn, which is only five kilometres from Helsingfors.

During the days preceding the Pageant great activity was shown by the energetic body called the Society of Aerial Defence in Finland. Large posters were shown all over the city of Helsingfors, processions went through the streets illustrating the evolution of methods of transport, bands played in the city, notices were shown in the kinemas, firework displays were given, aircraft flew over the city by day and night, flags were sold by the Society of Aerial Defence, and lectures were given on the wireless. Generally speaking it was made impossible for the good citizens of Helsingfors to be ignorant of the fact that something connected with aviation was taking place that week.

The promoters of aviation meetings in England might very

well copy the methods of our good friends the Finns beating up crowds. Theirs was evidently a marked contrast to the almost whispered publicity of the quite good Flying Meeting at Bournemouth during Easter.

The Helsingfors Pageant had the good luck to be held on a beautiful sunny day with a temperature well below freezing, and it was watched by an enormous crowd. The organisation by the Finnish Air Force, which incidentally is a separate Air Arm on the same lines as our own Royal Air Force, was as nearly perfect as possible, and all the events started to time and went through without a hitch.

The programme was as follows: 1. Fly past of different types of machines. 2. Formation flying. 3. Aerobatics. 4. Parachute descents. 5. Raising a smoke screen. 6. Destruction of balloons. 7. Aerial fighting. 8. Destruction of village. 9. Passenger flights.

Major Stewart, as an observer from England with vast experience of flying in most other countries, says that the three outstanding items were the super-excellence of the formation flying of the Finnish pilots; the two live parachute descents onto the ice; and the "set piece," the destruction of a village by Martinsyde machines. A most realistic village was built on the ice and the Martinsydes dived it amid the rattle of machine-guns and to the accompaniment of bursting bombs in the approved Hendon fashion.

The chief credit for the all-round excellence of the Pageant, in which not even a tail-skid was damaged, and the very high standard of efficiency in the Finnish Air Force, must be given to the Commanding officer, Colonel V. Wuori. This distinguished officer has been in England and has visited many R.A.F. stations and aircraft works.



A PAGEANT ON THE ICE.—A monoplane of the Finnish Air Force, mounted on skis, flying at the Display over the harbour of Helsingfors. A ship frozen into the ice can be seen in the distance. The "swastika" marking on the wings of Finnish Air Force machines is interesting.



THE IDEAL LIGHT AEROPLANE

The Widgeon III is a very strongly built and substantial light aeroplane and, unlike a good many machines at present on the market, there is nothing flimsy about it and it is particularly suitable for real hard work. The machine carries passenger, pilot and about 50 lbs. of luggage. The engine is the well-known Cirrus Mark II, or the Armstrong-Siddeley "Genet." Being a parasol monoplane there is a most excellent view for both pilot and passenger in a downward direction, making the machine ideal for patrol or survey work.

In addition the wings are braced with struts and consequently there is no chance whatever of the rigging getting out of true and needing skilled attention. The passenger's entrance is through a door in the side of the fuselage and he has a very roomy cockpit. The aeroplane can be supplied with or without dual control. The machine is economical to run, the petrol consumption being approximately 20 miles per gallon, and the oil consumption is about one pint per hour. The overall dimensions of the machine when folded are only 8 ft. 6 ins. high, 10 ft. 6 ins. wide, and 23 ft. 1 in. long.

ENQUIRIES SOLICITED.

Manufactured by the

WESTLAND AIRCRAFT WORKS,
Branch of Petters Limited,
YEOVIL, ENGLAND.



View of the easy entrance to the passenger's cockpit.

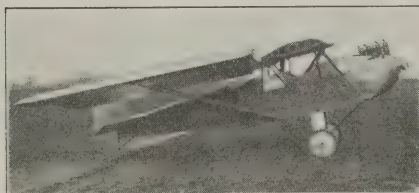


Illustration of the way in which the Wings fold back.



View of Engine Installation.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



AVIATION IN FINLAND.—A passenger monoplane belonging to the Finnish Air Force.

He is a first-class pilot himself and is possessed of a most attractive personality.

Much credit also is due to Colonel Solin, another Finnish officer of high rank, who has visited England and has been largely concerned in the excellent development of the Finnish Air Force.

With them one must join Squadron Leader R. M. Field, R.A.F., who has been lent to Finland by our Air Ministry to help in the instruction of Finnish pilots. He has already been two years in Finland, speaks Finnish, and is very popular in Helsingfors and with the officers of the Finnish Air Force.

There is interest in noting that the Finnish National Aircraft Factory, belonging to the Air Force, has recently produced a fast single-seat fighter with a Bristol Jupiter engine, embodying all the latest ideas in aircraft design. The designer is Mr. Berger, who has studied the science of aerodynamics in England for some time. The machine had only been flown four times when Major Stewart was in Helsingfors, and it gave excellent promise of fulfilling all the requirements of a fast fighter well up to present day standards.

In conclusion Major Stewart vouches for the fact that the

Finnish Air Force under Col. Wuori has reached a very high standard of discipline, organisation and efficiency. Also the amount of flying done by the pilots is very considerable. Except as regards size, the Finnish Air Force will stand in comparison with any other Air Force in the World.—C. G.

FLYING IN BOLIVIA.

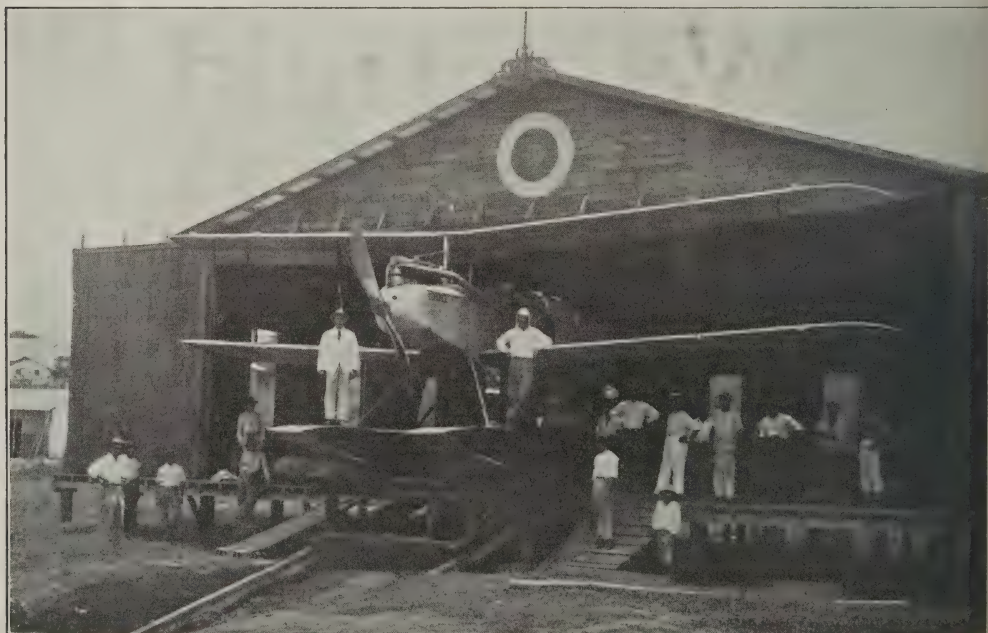
AIR SERVICE WORK.

The aerial passenger and goods service between Cochabamba and Santa Cruz is being administered by the Lloyd Aero Boliviano. This company, organised in November, 1925, made a contract with the Government, on Feb. 22, 1926, for the service between the two named places and Trinidad (Bolivia, not West Indies). It is subvented by the Government in conformity with law of Oct. 13, 1925, which allocates the amount of Bs. 100,000 for this service.

The service has been carried out with all regularity and under excellent conditions of security for the passengers. Junkers aeroplanes with engines of 230 h.p. are used and carry six passengers all told.

AVIATION STATISTICS.

The Lloyd Aero Boliviano has published statistics relating to the regular air service at present running between Cochabamba and Santa Cruz.



EQUATORIAL AVIATION.—The D.H.9 (Puma engine and Short floats) which was supplied by A.D.C. Aircraft Ltd. to the Bolivian Government. Mr. J. R. King, the pilot, is seen in white flying cap, standing on the starboard float.

Fitted by 60% of British Aircraft Constructors.

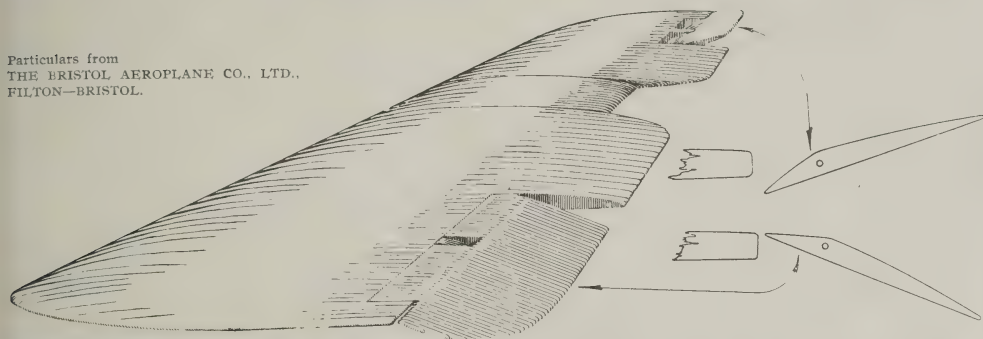
THE *"Bristol"*

FRISE AILERON

ensuring increase in control
with
decrease in yaw.

Patent No. 30542.

Particulars from
THE BRISTOL AEROPLANE CO., LTD.,
FULTON-BRISTOL.



World's Speed Records on Wakefield Castrol

On April 13th a Caproni Military Airplane, piloted by Lieut. Galiani, fitted with "Asso" engines and loaded with 2,000 Kilogrammes of ballast, secured the following World's Speed Records.

100 Kilometres ... 180.15 k.p.h. 500 Kilometres ... 174.14 k.p.h.

All over the World, whatever the test, the Expert chooses—

*There is a CASTROL
grade for every engine.*

*If you have a lubri-
cation problem, let us
place our experience at
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& CO., LTD.,

*All-British Firm.
Specialists in Lubrication.*
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

bamba and Santa Cruz, including, however, some flights made at special requests. The Junkers of this concern have transported 1,000 passengers, including 746 men, 254 women, and 34 children of less than 10 years of age, 45 tons of mails and goods, with a total flying distance of 45,000 kilometres.

One of the Junkers recently met with an accident when it dashed against some trees, the petrol tank exploding and killing its six passengers, including pilot and mechanic. The aeroplane was on its way from Cochambamba to Santa Cruz, on which route it had been flying since August, 1926.

It was piloted by Herr Sailer. The killed include the Consul-General for Arica, Sr. Emilio Antelo. This is the only serious air accident which the company has had up to date.

FRENCH MILITARY AIRCRAFT.

Capt. Henri Lemaître, one of the aces of French aviators, has visited Bolivia for the purpose of demonstrating to the Government the qualities of the Breguet aeroplanes, which he represents. M. Lemaître commanded an escadrille during the war and won the Liberty Trophy in the United States in 1925. As proof that aeroplane progress and flying in general can be made quite safe in that country, M. Lemaître carried out a night flight over La Paz, which lasted an hour and was successful from every point of view.

A BRITISH DEMONSTRATION.

A great deal of flying has been done in Bolivia recently by Mr. J. R. King, who will be remembered as a very active aviator and aircraft engineer at Brooklands during the past few years, and also as having gone out to Egypt as a pilot with that abortive expedition which was equipped to assist the late King of the Hedjaz, in his war with Ibn Saud.

After that Mr. King negotiated with the Air Survey Co. Ltd. to go out to the East with Mr. Kemp. Eventually, however, he went to the other side of the Earth, going to Bolivia to look after a D.H.9 seaplane (Puma engine) which had been sold to the Bolivian Government by A.D.C. Aircraft.

This machine, which was fitted with Short floats, was sold in 1926, and on its arrival in Bolivia was flown by an Austrian pilot, who damaged it seriously in alighting after one of its first flights. The machine needed a competent mechanic to repair it and Mr. King was engaged by the firm in London through whom the machine had been bought. On arrival in Bolivia he rebuilt it with the spare parts which had been bought from the A.D.C. people and his first flight on it was entirely successful. In fact the local people were so pleased that they presented him with a gold medal.

Later on he flew from Riberalta in Bolivia to Maldonado in Peru, a distance of 280 nautical miles (320 land miles) in 2 hours 50 minutes. And, just by way of showing that this speed was not due to the help of the wind, he flew back in exactly the same time.

In a letter enclosing some photographs of the machine Mr. King says that he has flown up and explored all the large rivers in Bolivia, which rivers have a habit of rising about thirty feet during the wet season.

One hopes before long to be able to publish a fairly full account of Mr. King's work.

THE PORTEGUESE IN THE FAR EAST.

Information has been received that a new Naval Seaplane Station is shortly to be established in Macao, the Portuguese Colony in China. Whether this is because of the present political situation in China or not one cannot say. The report has it that Lieut. José Cabral is taking three Fairey III Ds. with the necessary equipment and personnel to this new Seaplane Station. The three Faireys are already packed up ready for shipment and may possibly have left Portugal by the time these notes appear.

Lieut. José Cabral has been having a special course of training on Fairey machines in England and has proved to be a very competent pilot of the type. Lieut. Cabral is the star turn pilot of the Portuguese Naval Flying Service and he has imparted his knowledge of Fairey machines to his brother officers with excellent effect.

The result is that not only are the machines now well flown, but they are fully understood and are distinctly in favour in the Portuguese Navy.

A LECTURE ON AIR SURVEY.

On Tuesday, May 10, Major H. Hemming of the Aircraft Operating Co. Ltd., who is known all over the World as one of the pioneers of air survey work, will read a paper on Aerial Survey before the Institution of Aeronautical Engineers.

The meeting will take place in the Lecture Room of the Junior Institution of Engineers, 39, Victoria Street, S.W.1, at 6.30 p.m. The paper will be fully illustrated with lantern slides and should be very interesting.

Members and friends will do well to attend this lecture, dealing as it does with the only branch of Civil Aviation, except joy-riding, which is already a commercial proposition.

THE R.A.A.F. ACCIDENT AT MELBOURNE.

Two officers and two non-commissioned officers of the Royal Australian Air Force were killed at Melbourne on Apr. 21, as the result of a collision in the air during the ceremonial manoeuvres in connection with the visit to Melbourne of Their Royal Highnesses the Duke and Duchess of York.

The machines were two of a Flight of D.H.9s and were flying in close formation low over the town.

Both machines burst into flames after the crash.

The names of the killed were, Flt. Lt. R. I. Dines, Flg. Off. V. H. Thornton, Sjt. W. Hay and Cpl. C. Ramsden.

M. LEITNER'S ACCIDENT.

Mr. Henry Leitner, of Metal Aircrews Ltd., was one victim of a serious accident on the morning of Apr. 3.

Mr. Leitner was being driven towards London when the car in which he was riding mounted the footpath and struck a wall in front of a house and then knocked down a lamp-post.

Mr. Leitner had his breast-bone and both legs fractured, and, with the driver and another passenger who were also badly hurt, was taken to Croydon General Hospital.

Everyone concerned with aircraft will sympathise with Mr. Leitner in this very regrettable affair, and will hope for his speedy and complete recovery.

WARNING TO AIRMEN.

Air Ministry Notice to Airmen No. 30 of 1927 states:—

NOTICES TO AIRMEN.—1. Printed Notices to Airmen are issued by the Air Ministry free of charge to convey urgent and important information to all concerned with air navigation. It is important that every pilot, whether licensed in Class "A" or Class "B," should personally receive a copy of the Notices as soon as possible after issue, and for this reason the Notices are given a wide distribution. All owners of aircraft are supplied with copies of the Notices for their own use and also, in the case of owners employing pilots for the information of their pilots. The Notices are also distributed to officials of all public aerodromes, aviation clubs and associations, and to aircraft and aero-engine manufacturers.

2. In the event, however, of individual pilots failing to receive copies through any of the existing channels they will be supplied directly from the Air Ministry upon application being made to the Secretary (C.A.3), Air Ministry, Gwydyr House, Whitehall, London, S.W.1.

3. Notices to Airmen of exceptional urgency are broadcast by wireless telegraphy to the principal aerodromes, a printed Notice in confirmation being issued subsequently if required.

AIR AFFAIRS IN PARLIAMENT.

THE COST OF AN AIRCRAFT CARRIER.

In the House of Commons on Apr. 11, in reply to a question by Mr. RENNE SMITH, the FIRST LORD OF THE ADMIRALTY said that the cost of the largest British aircraft carrier in service was £4,617,636. The tonnage was 22,600 and the Annual Maintenance Charge, including about £130,000 for maintenance of R.A.F. personnel and aircraft, was £408,000. [These figures presumably refer to H.M.S. Eagle.]

NO ALIENS IN THE R.A.F.

In the House of Commons on Apr. 13, in reply to Mr. SHORT, the SECRETARY OF STATE FOR AIR said that there were no persons of foreign nationality or Asiatic race receiving training in the R.A.F.

RELATIVE RANK.

In the House of Commons on Apr. 12, in reply to a question by Mr. HORE-BELISHA, LIEUT.-COL. HEADLAM said that Chief Petty Officers in the Navy ranked with Colour-Serjeants and Staff-Serjeants in the Army and Flight-Serjeants in the R.A.F. Petty Officers ranked with Serjeants in the Army and Bombardiers in the Army and Corporals in the R.A.F. King's Regulations and Admiralty Instructions would be amended to make the matter clear.

THE HAMBLE PAGEANT.

Owners of civil aircraft are reminded that entries for the Hamble Pageant, which will take place on May 15, close definitely on Monday next, May 2. Late entries at a fee of five guineas per machine will be accepted until noon on Friday, May 13, and it is well to remember that late entry fees are not returnable.

Complete entry forms must be returned to Flt. Lt. Crawford, Fiveways, Lee-on-Solent, with the proper entrance fee.

Would-be entrants are further reminded that their machines must be at Hamble Aerodrome not later than noon on Sunday, May 15, the day of the Pageant.

Shed accommodation will be provided by A. V. Roe and Co. Ltd. for all light aeroplanes free of charge from May 14 to May 16, and an endeavour will be made to house any other aircraft if notice is given beforehand.

Entrants are reminded also that they are responsible for seeing that they possess a current Third Party Insurance Policy for every aircraft entered.

Incidentally, one may remark that the money prizes, of £50, £100 and £50 respectively, which go with the President's Challenge Cup presented by Lord Louis Mountbatten, the Morris Challenge Cup presented by Mr. W. R. Morris of Oxford, and the Wakefield Challenge Cup presented by Sir Charles Wakefield, have been provided out of the Club's Prize Fund. One hopes that this will be an additional reason for everybody concerned with aviation to support the Club in making Hampshire air-minded.—C. G. G.

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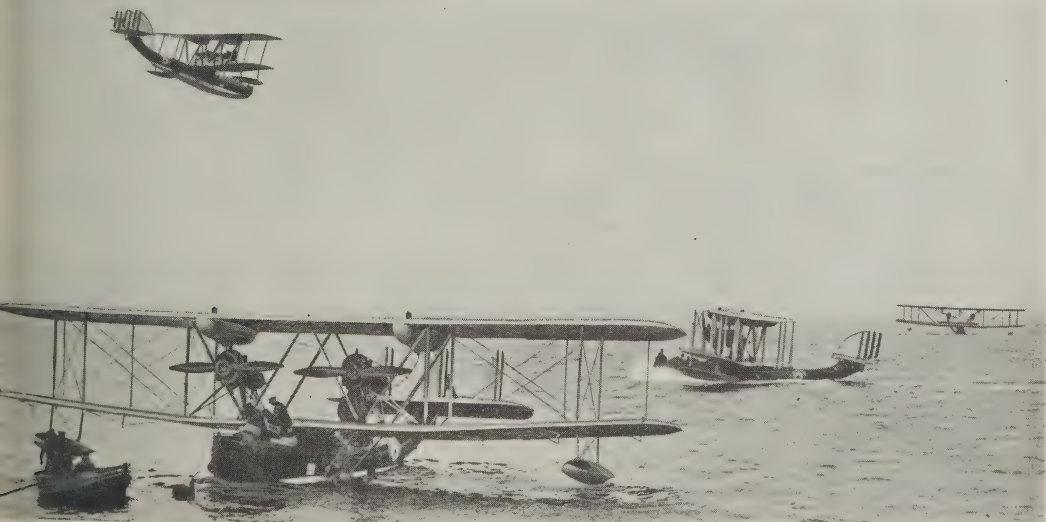
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THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: H. E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending Apr. 17.

Total flying time 36 hrs. 10 mins.

Dual Instruction.—E. Black, R. J. B. King, G. B. Randall, E. T. Symmons, Dr. Cook, M. P. Susman, L. C. Davey, B. Tucker, I. H. McClure, E. J. B. King, I. Rich, A. J. Richardson, H. M. Samuelson, R. Drysdale Smith, I. C. Horton, H. Spooner, J. G. Crammond, Miss O'Brien, Lord Clydesdale. **Solo Flying.**—G. M. Randall, J. H. Saffery, E. D. Moss, M. L. Bramson, E. S. Brough, C. A. Rogers, A. C. Pearson, Miss O'Brien, O. J. Tapper, H. Spooner, I. C. Horton, R. Malcolm, W. Beckett, C. R. Campkin, T. W. G. Eady. **Passenger Flights.**—H. G. Riches, L. C. Davey, G. Lambert, Mrs. King, Mrs. Black, Miss Wilson, Miss Morris, G. H. Saxon Mills.

Report for week ending Apr. 24.

Total flying time 24 hrs. 20 mins.

Dual Instruction.—E. T. Symmons, I. H. McClure, H. M. Samuelson, L. C. Davey, H. S. Greenland, M. P. Susman, A. J. Richardson, J. J. Hofer, A. J. Mulder, E. J. B. King, G. Black, Miss O'Brien, D. H. P. Esler. **Solo Flying.**—O. J. Tapper, A. C. Pearson, Miss O'Brien, A. C. Horton, D. H. P. Esler, H. Spooner, J. J. Hofer, K. V. Wright, Major K. M. Beaumont, D.S.O., J. H. Saffery, G. Terrell, A. R. Ogston. **Passenger Flights.**—A. D. Wilson, Miss Wilson, H. Percy, T. E. Miller, B. Merry, G. H. Saxon Mills, G. C. Bonner, I. H. Whiteside.

Bournemouth Easter Meeting.—The total flying time in connection with the Easter Races, including the flights to and from Bournemouth, was 26 hrs. 50 mins.

Sunday Transport.—Burnt Oak Station on the Hampstead Tube is now open on Sundays. This station is within five minutes' walk of the Aerodrome.

The Hampshire Pageant.—The Club will be represented at the Hampshire Pageant on May 15 by one D.H. Moth and the Bristol Brownie. The selection of the pilots will be made later.

The Lancashire Aero Club.

[Sec.: C. J. Wood, Windsor Bank, Chapel Street, Hyde, Cheshire.]

Report for week ending Apr. 23.

Very rough weather impeded aviation towards the end of the week. Total flying time 56 hrs. 10 mins., made up as follows:—

Dual with Mr. Brown.—Messrs Ward 1 hr. 35 mins., Fallon 1 hr. 25 mins., Hindley 1 hr. 10 mins., Terres 1 hr., Cohen 45 mins., Ruddy, Shiers, Jenkinson, Caldecott and Miss Baerlein 40 mins. each, Anderson 35 mins., Meades 25 mins., Leeming, Kearns, Chapman, Evans, Miss Brown and Miss Emery 20 mins. each, Messrs. Crosthwaite, Crabtree, Cattrell and Dobson 15 mins. each. **Dual with Mr. Cantrell.**—Messrs. Goodyear 1 hr. 5 mins., Leeming 10 mins. **Dual with Mr. Scholes.**—Mr. Twemlow 7 hrs. 15 mins. (Navigation instruction). **Solos.**—Messrs. Abdalla 3 hrs., Blagden 2 hrs. 20 mins., Forshaw 2 hrs. 5 mins., Twemlow 2 hrs., Scholes 1 hr. 55 mins., Dickinson 1 hr. 50 mins., Lacayo 1 hr. 45 mins., Costa and Fallon 1 hr. 25 mins. each, Gattrell 1 hr. 15 mins., Crosthwaite 40 mins., Nelson 25 mins., Goodfellow, Birley, Hardy and Miss Brown 20 mins. each, Mr. Goodyear 5 mins. **Joy-rides.**—With Mr. Cantrell—Mr. Murrell 1 hr. 50 mins. (photography), Mr. Ruddy 15 mins., Mrs. Ruddy, Mrs. Holden, Miss Emery, Miss Roberts, Miss Turner, Miss Browning and Messrs. Goodfellow, Clark and Jones 10 mins. each. **With Mr. Lacayo.**—Mr. Caldecott 2 hrs. 5 mins., Mr. Carllick 10 mins. **With Mr. Brown.**—Mr. Murrell 2 hrs. 15 mins. (photography), Mrs. Gattrell and Mr. Holden 15 mins. each, Mr. Scott 10 mins. **With Mr. Goodfellow.**—Mr. Leeming 30 mins., Messrs. F. Jones, Mills and Cantrell 15 mins. each, P. Gattrell and Rudcliffe 10 mins. each. **With Mr. Costa.**—Miss Shatwell 20 mins., Mr. Terres 15 mins. **With Mr. Michelson.**—Mrs. Fielding and Mr. Knowles 15 mins. each.

Test Flights.—1 hr. 40 mins.

"'Curse it!' Aero-foiled again," hissed the villain, as Glad-eyed Gladys leaped lightly into her Hampshire Half-cock and disappeared in a cloud of Castrol."

By Thursday night the Club had done over 50 hrs. flying. The torch, arrow, split-pin and split infinitive were sent round to members bidding them to really rally and help London Bridge to fall down. Alas, two well-known gents called Boreas and Jupiter Pluvius accepted the invitation by mistake and put in a full 24 hrs. per diem. On Friday there were many winged words flying round, but no aeroplanes. And Saturday was almost as bad, though one or two hardy spirits did give an auto-gyroscopic display on the Renault-Avro. Messrs. Lacayo and Caldecott even achieved a cross-country, taking 1½ hrs. outwards and 20 mins. back.

Although this week's flying effort has failed by a long way to reach London's record it has not been an inglorious failure and constitutes a Lancashire Club record, both for a week, and for a single day, 16 hrs. having been flown on the Sunday with only two Moths and the Renault-Avro available.

Messrs. Scholes and Twemlow returned safely from Bournemouth on Tuesday, both having flown excellently, as everyone who saw them will agree. Mr. Scholes did suggest that LV, having five crashes to her credit, is not altogether in the racing class nowadays. The committee, however, pointed out to him that he was really sent down to Bournemouth in a typical specimen of Lancashire manhood and that if he had been given a faster machine the spectators would not have got a proper look at him.

Our other voluntary instructor, Mr. Cantrell, covered himself with glory in the Press. He was to have flown one of the Avians, but by a stroke of very bad luck was prevented from being there. This, however, did not deter the Press (who had some difficulty with his name) and the following is typical of what one read:—"An Avian, flown by Mr. Coutrill, starting in one of the Bournemouth air races. Mr. Cockerell finished second. (Inset—Mr. Cantrell, the pilot)." He has our sympathy.

The Newcastle-upon-Tyne Aero Club.

[Sec.:—A. H. Bell, Cramlington Aerodrome, Northumberland.]

Report for week ending Apr. 23.

Flying was possible on only four days of the week. Total flying time 20 hrs. 25 mins., QV—19 hrs. 40 mins., LX—9 hrs. 45 mins., made up as follows:—Dual, 15 hrs. 5 mins. Solo (Training), 2 hrs. 40 mins. "A" Pilots, 10 hrs. 50 mins. Joy-rides, 35 mins. Tests, 15 mins.

Instruction with Mr. Parkinson.—Mrs. Heslop, Miss Leathart (Secondary), Capt. Milburn, Mr. A. E. George, Mr. W. M. MacKay, Mr. M. G. Thirlwell, Mr. L. M. Middleton, Mr. J. M. Kennedy, Mr. G. H. Twine, Mr. A. J. Rasmussen, Mr. F. L. Turnbull, Mr. H. Ellis (Secondary), Mr. Mathews, Mr. J. Stawart. **Solos.**—Mr. J. Stawart, Mr. F. L. Turnbull. **"A" Pilots.**—Mr. H. H. Leech with Mr. Thirlwell. Miss Leathart, Mr. C. Thompson with Mrs. Heslop, Mr. Palmer, Mr. Luckman and Mr. W. Todd. Mr. R. N. Thompson with Mrs. W. B. Ellis. Dr. H. L. B. Dixon with Mr. Law. Mr. H. Ellis with Mr. Ogdon, Mr. and Mrs. White. Mr. Mathews. Mr. A. Bell with Mr. J. Bell. **Joy-rides with Mrs. Parkinson.**—Miss Kennedy, Miss Berry, Mr. Bulman and Mr. Ogdon.

The Club's Flying Meeting will be held on Saturday, June not on Sept. 3, as previously announced. The Club had hoped to hold this Meeting on Whit Monday, but recently learned that the Royal Aero Club had arranged a Meeting for this date.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth, Birmingham.]

Report for week ending Apr. 23.

Total flying time 10 hrs. 20 mins.

Dual with Mr. McDonough.—E. P. Lane, G. G. Savage. **Solos.**—R. L. Jackson, W. Swann, G. V. Perry, E. J. Brighton, A. J. Winstanley, J. Brinton, H. J. Willis. **Passengers with Mr. McDonough.**—W. H. Swann, Miss P. M. Lane, Miss C. Ball, R. D. Bednell, S. H. Smith. **With Mr. Glover.**—S. H. Smith, E. J. Brighton. **With Mr. Brighton.**—Miss C. Ball, Mrs. Whitworth, F. J. Whitworth.

Members are cordially invited to ten at the aerodrome on Sunday May 1, when an attractive programme has been arranged for the special benefit of Ordinary Members. It is hoped that some visiting aircraft will be at the aerodrome for the occasion, and special facilities are being arranged for passenger flights from 2 p.m. onwards.—V. M. P.

The Yorkshire Aeroplane Club.

[Sec.:—J. F. Barnes, 39, Swan Arcade, Bradford.]

Report for week ending Apr. 23.

Total time 10½ hrs., consisting of 10 hrs. 20 mins. solo, 6 hrs. 20 mins. instruction and 2 hrs. 35 mins. joy-riding.

Solos.—Messrs. Carter, Clapham, I. S. Dawson, Mann, Wayman and Wilson. **Instruction.**—Messrs. Brown, R. K. Lax, Ling, Little, Swift, Weaver, Wilson and Wornald. **Joy-rides.**—Messrs. Andrews, Lapish, Smith, J. and P. Weaver, Wilcox, the Misses Langrick, Mrs. Wilson and Miss M. Wornald.

Our programme this week was as follows:—

Easter Sunday.—Mr. Wilson was launched on his first solo, which took 25 mins., and put up an excellent show.

Tuesday.—Messrs. Dawson and Wayman each flew with a passenger on cross-country flights which embraced the Harrogate, Scarborough and Pile Districts. Mr. Dawson appeared over the Wetherby Racecourse at the end of the meeting.

Wednesday.—No flying was possible until the evening on account of the gale.

Thursday.—To-day was occupied with the R.A.F. visit to Leeds. Mr. Beck flew over from Sherburn in LS and landed in the Military Field at Roundhay shortly after 10.00 hrs., but the four Hawker-Horsleys from Spitgate Aerodrome did not appear over Leeds until mid-day. After circling the City for 15 mins. they landed and were taxied alongside the Moth. The public was then admitted to inspect the machines. In the afternoon Mr. Parkinson of the Newcastle Club flew over from Cramlington and gave a fine exhibition over the crowd.

Friday.—Mr. Beck flew NN back from Leeds to Sherburn.

Saturday.—Mr. Beck with Mr. Weaver as passenger flew over to Beverley, where they landed on the Racecourse. After an excellent lunch at the "Beverly Arms" they returned to Sherburn.

During the week two more members have joined. They are Mr. E. Vincent P. Miller, of Grappenhall, near Warrington, and Mr. Peter Weaver, who hails from Melton Mowbray.—R. O. L.

The Hampshire Aeroplane Club.

[Sec.:—A. N. Clifton, 49, Bugle Street, Southampton.]

Report for week ending Apr. 22.

Total flying time for the week 5 hrs. 5 mins., which included flying at Bournemouth on Saturday and Monday.

For the benefit of our members, it may be as well to report here our activities on those days. On Saturday, Mr. Thomson flew in the Winton Handicap and passed the winning post in a strictly neutral position, being fourth out of seven starters. In the Bournemouth and District Business Houses Handicap Flt. Lt. Crawford was second in the first heat on the Hampshire Moth, after putting in some very fine cornering (especially as his flying time on Moths is comparatively short) and in the final of this race he was third. We were very pleased about this, as our Mark I Cirrus has been hard at work continuously since last August, and there were 25 entrants for this event.

"As reported (more or less accurately) in this paper last week, our sole remaining Moth was deleted at Bournemouth, but thanks to the kindly assistance of Mr. R. J. Parrott an Avro Avian was acquired by the Club immediately, so that instruction was not interrupted. However, gales have prevailed most of this week, so that our flying time was very small."

Four members were able to handle the Avian in the air this week; they were Messrs Cox 10 mins., Bound 10 mins., Bowen 10 mins., and E. Wylie 5 mins.

The Bristol and Wessex Aeroplane Club.

[Acting Secretary: C. S. Clarke, Channel Road, Walton Park, Clevedon, Som.]

The inaugural meeting of the Bristol and Wessex Aeroplane Club was held in the Victoria Rooms, Clifton, Bristol, on Apr. 7. The report of the meeting has been delayed owing to the rush of work in connection with the Bournemouth flying meeting.

By way of attraction to the meeting a D.H. Moth, flown to Bristol by Mr. Broad, was towed through the streets of Bristol and mounted on the steps of the Victoria Rooms.

Mr. C. S. Clarke, the Acting Secretary of the Club, presided at the Meeting, which was well attended. He read a message from Sir Samuel Hoare expressing as usual his keen interest in the Club movement and his appreciation of its value in fostering an air sense.

Mr. Clarke said that the idea of a Bristol Club arose about two years

go. Many Clubs had already been formed and it was up to Bristol now to take its place in the movement. The necessary preliminary steps had been taken and a small company had been formed. Already 6 applications for membership had been received.

He announced that Mr. George Parnall had very generously offered the use of the aerodrome at Yate, and the necessary shed accommodation. His Grace the Duke of Beaufort had consented to be patron of the Club. The Solicitor-General (Sir Thomas Inskip, K.C., M.P.), Sir Beddoe Rees, M.P., Sir G. Stanley White [of the Bristol Company], Mr. Herbert Thomas [of the Bristol Company], Mr. George Parnall and Major Egbert Cadbury, D.S.C., D.F.C. [late R.A.F., who now lives in Bristol in charge of the Fry's Chocolate branch of the Cadbury-Fry amalgamation] had consented to be vice-Presidents. The office of President had not yet been filled.

Mr. F. G. L. Bertram, Deputy-Director of Civil Aviation, gave a number of figures about what the six subsidised Clubs had done, and then added that unfortunately he could hold out no hope to the Bristol Club of financial assistance from the Air Ministry but that the Air Ministry would be "only too ready" [whatever that may mean] to give any technical advice or assistance. He prophesied that the Club's great difficulty was going to be the difficulty of finance and not the finding of members. He urged that Bristol must not lag behind in the production of the "private air adventurer" of the future, and wished the Club every success. [One gathers that Mr. Bertram acted as a fairly successful wet blanket rather than as an encouragement.]

Mr. Hubert Broad, of the de Havilland Company, made a delightful speech in favour of light aeroplanes, mentioning that the London Club flying members included a boy of 15 and a man of 65 and stating that flying was an inexpensive hobby. [Which it certainly is when one considers the initial cost of the machine has been found.]

The Chairman announced that someone who was interested had offered one-sixth the cost of the machine for the Club if five others could share the remainder of the cost.

Mr. George Parnall, the well-known aircraft manufacturer, said that he thought there was at least one machine at Yate which might be of service to the Club. Also he would be very pleased to contribute one-sixth of the cost of the machine. Everybody at the aerodrome and works at Yate would do all they could to help the Club. But for force of circumstances the Bristol Club would have been ruined a long time ago, and he had no doubt that the citizens of Bristol would now rally round.

The Bristol papers have given the Club their support, and one hopes that eventually the necessary finance will be found among the merchant princes of Bristol to set the Club on its feet.

One gathers from correspondence that Sir Charles Wakefield, that fine of aeronautical benevolence (in addition to all his other interests), as the sportsman who originally offered to find one-sixth of the cost of a machine. One is glad to see that both Mr. George Parnall and the Directors of the Bristol Company are taking a practical interest in the Club. The organisers propose to arrange another meeting at an early date, and, by taking precautions not to clash with anything else, hope that Sir Samuel Hoare himself will attend the meeting, which under his ægis should certainly attract the most important of the important people of Bristol.—C. G. G.

The Singapore Flying Club.

At a meeting of the newly-formed Singapore Flying Club the Chairman, Mr. A. K. Maitland, stated that a deputation had waited upon the Colonial Secretary and had mentioned that the initial outlay would be about \$60,000 and the upkeep \$20,000 per annum. The Club had not yet received a reply from the Government.

The Yacht Club would be prepared to receive members of the Flying Club as visiting members on a subscription of \$5 a month. The Singapore Harbour Board had been approached with regard to granting a piece of land for a shed and were thought to view the suggestion favourably.

Three non-flying members were added to the Committee which now numbers seven. Mr. G. W. A. Trimmer was chosen as Wing Commodore of the Club, with Mr. Bagnall as Vice-Wing Commodore, and Sir Theodore Fraser, the G.O.C., and the Senior Naval Officer as Hon. Vice-Wing Commodores.

SOUTHERN ACTIVITIES.

The Gnat Aero Co. of Portslade have been very active of late. Unfortunately their dual instruction machine G-EATU was badly damaged on the 9th of this month by a pupil who had been trying an engine-off landing from about 6,000 feet and, owing to the engine getting cold on the way down, had to land with a dead engine. He was unable to reach the aerodrome, so landed in another field where he met a wire fence and damaged the undercarriage and lower planes in about two feet of water. Dismantling the remains meant a day's paddling.

The firm recently sold G-EAAY to Mr. Lewis, lately of the Southern Counties Company. During the Easter Holidays they did some joy-riding at Seaford on G-BBJE. Sundry members of the club hope to journey to the Hampshire Pageant by air on May 15.

WANTED: AFRICAN PHOTOGRAPHS.

Herr Soebel, a German aeronautical engineer, is preparing a book called "Africa from Above." This book deals among other things with that very fine flight made by one of the German Zeppelins during the War 1914-18 to meet General von Lettow-Vorbeck in German East Africa, when the airship actually reached a point far South of Khartum and was only recalled by wireless because the German forces in East Africa were then beyond help.

To complete the illustration of this book Herr Soebel particularly wants photographs taken from aircraft of the African Desert and particularly of the environs of Wadi Halfa and Khartum. If any readers of THE AEROPLANE happen to have such aerial views, and would be so kind as to lend them for the purpose, Herr Soebel will be greatly obliged and will duly send them an autographed copy of the book in acknowledgment of their courtesy. Any communications on the subject to the office of THE AEROPLANE will be duly acknowledged and will be forwarded to the authors of the book.

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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 11; Tuesday, 15; Wednesday, 15; Thursday, 14; Friday, 14; Saturday, 16; Sunday 9.

IMPERIAL AIRWAYS LTD.:

Paris—London; London—Brussels—Cologne: Machines 36, passengers 374, freight 14 tons.

AIR UNION:

Paris—London: Machines 33, passengers 94, freight 12 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 12, passengers 58, freight 2½ tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 10, passengers 57.

PRIVATE:

Machines 3, passengers 2.

Total number of trips by British Machines, 39, carrying 376 passengers. Foreign Machines, 55, carrying 209 passengers.

Comparative Figures:

Week ending Apr. 24:

Machines, 94; Passengers, 585; Crews, 163; Total personnel, 748.

Corresponding week, 1926:

Machines, 83; Passengers, 440; Crews, 111; Total personnel, 551.

Corresponding week, 1925:

Machines, 122; Passengers, 383; Crews, 154; Total personnel, 537.

Corresponding week, 1924:

Machines, 45; Passengers, 196; Crews, 72; Total personnel, 268.

Corresponding week, 1923:

Machines, 83; Passengers, 371; Crews, 131; Total personnel, 502.

Corresponding week, 1922:

Machines, 104; Passengers, 193; Crews, 134; Total personnel, 327.

Corresponding week, 1921:

Machines, 53; Passengers, 206; Crews, 66; Total personnel, 272.

Corresponding week, 1920:

Machines, 44; Passengers, 44; Crews, 46; Total personnel, 90.

Croydon Notes.

In view of the fact that on Saturday Mr. Hinchliffe made a return flight between London and Manchester in under three hours it is interesting to note that 17 years ago, on Apr. 27-28, 1910, M. Paulhan, on a Farman biplane with a 50 h.p. Gnome engine, flew for the first time from London to Manchester and thereby won *The Daily Mail* £10,000 prize.

The previous week, Mr. Claude Grahame-White, in a similar machine, had attempted the flight and had arrived at Lichfield. Here the machine was blown over and damaged through not having been picked down.

The machine was taken back to London and repaired and on Saturday, Apr. 27, Mr. Grahame-White was again ready to start at Wormwood Scrubbs. M. Paulhan also was ready to start at the same time and used as his starting point what is now Hendon aerodrome, but was then merely fields.

M. Paulhan started at 17.31 hrs. and flew without a stop to Lichfield. Here he stopped the night and, restarting early, arrived at Burnage, Manchester, at 05.22 hrs. on Apr. 28.

Mr. Grahame-White was caught napping and did not leave Wormwood Scrubbs until 18.20 on Apr. 27. There was no summer time in those days and so he was forced down by bad light at Roade at 19.55 hrs.

The following morning he restarted at 02.50 hrs. in pitch dark with an engine that was not running properly. When one considers the machine, the engine, the conditions and the lack of experience of the pilot, this must be considered one of the finest feats in the history of aviation. Weather and engine, however, were against Mr. Grahame-White and he was forced down at Lichfield. The advance of aviation is shown very clearly when one looks back on these flights.

Incidentally, when referring to *The Aero* (THE AEROPLANE'S predecessor) for these facts one came across a note on Mar. 29, 1910, to the effect that an aerodrome was being made at Le Bourget. Judging from the map, this appears to have been on the side of the main road opposite to that on which the present aerodrome is situated.

There is a certain amount of night-flying at Croydon aerodrome nowadays. The afternoon machine from Cologne to London seldom gets in before 20.00 hrs. and on Friday last Mr. Hinchliffe with one passenger on a W.8b landed at 22.45 hrs. On many occasions the last part of a flight has been made in pitch darkness.

There was rather an unpleasant incident on Friday which might have led to serious consequences. A W.8b having taken off was seen hurriedly to land again. It seems that the mechanic did not fasten his safety belt before taking off. This was hanging over the side and in pulling it in the wind caught it and blew it into his face. He was knocked out temporarily and his head was cut rather severely. No doubt this will have the effect of making everyone fasten their belts before starting.

Mr. Hubert Broad passed through the aerodrome on Friday on a Moth which has been bought by the Berlin Flying Club. He flew to Rotterdam on Friday and reached Berlin on Saturday, where he had a great reception.

A.D.C. Aircraft Ltd. are busy with Martinsydes, etc. Cirrus engines by the dozen are being made. One gathers that Major Halford is thinking in terms of an efficient high-powered water-cooled engine of Schneider possibilities. At present he is just thinking.—G. D.

A DATE TO BE NOTED.

When Messrs. T. N. Stack and B. S. Leete started in two De Havilland Moths with Cirrus Mk. II engines to fly to India, many people wondered where they would eventually land. Few believed they would ultimately reach their destination together. But on January 8, 1927, these "two great sportsmen," as they were aptly described by Sir Samuel Hoare, arrived at Karachi.

By doing so they settled once and for all the future success of the light aeroplane, and fired many thousands throughout the world with enthusiasm to have their own machine and to become owner-pilots.

The journey from London to Karachi was made with very little preparation. Messrs. Stack and Leete had to act as their own pilots and navigators and mechanics, and they could not rely on getting spares along the route, if anything went wrong. Their only dependable supply was petrol and oil, thanks to the permanent dumps laid by the enterprising petrol firms. Those facts make their flight all the more remarkable, and so they can tell a story of their experiences such as has been excelled by few pioneers.

On Wednesday, May 4, at 6.30 p.m., at the Royal Society of Arts, 18, John Street, Adelphi, Mr. Neville Stack will tell that story for the first time in public to the members and friends of the Royal Aeronautical Society. It will be at least as interesting and informative as any of the lectures recently given, so far as the matter is concerned. And having heard Mr. Stack tell of some of his adventures one can vouch for the manner of its telling. Also the pictures will be well worth seeing.

A RECRUIT FOR CANADA.

Mr. Charles Sutton, late Flying Officer, R.A.F., has joined the Fairchild Aerial Surveys Co. (of Canada) Ltd., and left England on Apr. 16 to take up a job as pilot with that firm. His friends in England are hereby notified that in future his address will be care of that firm, Grand 'Mere, Quebec.

Mr. Sutton was one of the quite early R.F.C. pilots, having actually joined in 1914. He was a captain, R.F.C., when the R.A.F. came into being and left the Service when demobilisation set in. Later he joined again with a Short Service Commission which expired last October. In 1924 he was serving with No. 70 Squadron in Iraq and thereafter served in Egypt.

NEW COMPANY.

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[This Company is of particular interest because Mr. G. E. F. Boyes is well-known as one of the pioneers of the light aeroplane movement being one of the original members of the Seven Aero Club whose ill-fortune with the Westland Woodgison at Lympne last year was one of the outstanding features of the Meeting. Flt. Lt. Syran was an artillery officer during the War and came into the R.A.F. from the Army in 1922. From 1924 till he went onto the Reserve at the beginning of this year he was at the Armament and Gunnery School at Eastchurch.]

PERSONAL NOTICES.

DEATHS.

ALDERTON.—On Apr. 19, at Eastchurch, Kent, as the result of a flying accident, F.S. Albert George Alderton, No. 9 (Bombing) Sqdn., R.A.F.

DANIELS.—On Apr. 19, at Eastchurch, Kent, as the result of a flying accident, AC.2. Everett Daniels, No. 9 (Bombing) Sqdn., R.A.F.

DINES.—On Apr. 21, at Melbourne, Australia, as the result of a collision in the air, Flt. Lt. Robert Imrie Dines, Royal Australian Air Force.

Flt. Lt. Dines joined the R.F.C. in October, 1916, after serving in France with the London Regt. He joined the R.A.A.F. in 1924.

DOWDESWELL.—On Apr. 19, at Eastchurch, Kent, as the result of a flying accident, John Frederick Dowdeswell, Flt. Off., No. 9 (Bombing) Sqdn., R.A.F.

Mr. Dowdeswell joined the R.A.F. with a S.S. comm in November 1925. He was posted to No. 9 Sqdn. in November, 1926, after a course of flying instruction at No. 1 F.T.S. at Netheravon.

HAY.—On Apr. 21, at Melbourne, Australia, as the result of a collision in the air, Sergeant W. Hay, Royal Australian Air Force.

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KELLY.—On Apr. 19, at Eastchurch, Kent, as the result of a flying accident, William James Kelly, Flg. Off., No. 9 (Bombing) Sqdn., R.A.F. Mr. Kelly joined the R.A.F. with a S.S. comm. in March, 1925, and was posted to No. 11 (Bombing) Sqdn. for a course of instruction. In September, 1925, he was posted to No. 12 (Bombing) Sqdn. He was promoted to the rank of Flg. Off. in November, 1926, and in January, 1927, he was posted to No. 9 (Bombing) Sqdn. for Air Armament duties.

RAMSDEN.—On Apr. 21, at Melbourne, Australia, as the result of a collision in the air, Cpl. C. Ramsden, No. 3 Sqdn., Royal Australian Air Force.

SMITH.—On Apr. 23, at Lakenheath, Suffolk, Henry Beveridge Smith, M.B. (Flt. Lt. hon. Sq. Ldr. R.A.F. Medical Service, retired).

Sq. Ldr. Smith joined the R.A.F.M.S. from the R.A.M.C. in 1918. He was posted to No. 1 F.T.S., Netheravon, where he was stationed until he retired a few weeks ago. He served with distinction in the Boer War and in the War 1914-18.

THORNTON.—On Apr. 21, at Melbourne, Australia, as the result of collision in the air, Vincent Harry Thornton, Flg. Off., Royal Australian Air Force.

Mr. Thornton joined the Australian Citizen Air Force in 1925.

MARRIAGES.

FARRINGTON-NEVILLE.—On Apr. 21, at All Souls', Langham Place, W., Sq. Ldr. Wyndham Brookes Farrington, D.S.O., son of Mr. and Mrs. F. W. Farrington, of Wilcombe, sevenoaks, to Violet Muriel, third daughter of the Rev. Brent R. Neville, M.A., and Mrs. Neville, of Holbrook Rectory, Ipswich.

HUMPHREYS-LOWE.—On Apr. 23, at Limsfield, Dudley Humphreys, R.A.F., son of Mr. and Mrs. C. J. Humphreys, of Bourne-mouth, to Margery, only daughter of Mr. and Mrs. J. Fox Lowe, of Limsfield, and granddaughter of the late Rev. Canon Lowe, of Haultwhistle, Northumberland.

MASON-LOCKE.—On Apr. 19, at Lingfield Parish Church, Cyril Rutherford Mason, R.A.F., only son of the late Thomas Mason and Mrs. Mason, of Lifford, to Alice, third daughter of Mr. and Mrs. Herbert Locke, of Lingfield.

STEMP-GREVENER.—On Apr. 23, at St. George's Church, Hanover Square, Geoffrey Charles Stemp, R.A.F., to Frieda, eldest daughter of Mr. and Mrs. J. Greverner, of Streatham Common, S.W.

FORTHCOMING MARRIAGE.

PRESLAND-MACCULLUM.—A marriage has been arranged and will take place on June 11, at St. Martin's-in-the-Fields, between Reginald Clarence Presland, Flg. Off., R.A.F.O. (late R.N.A.S.), youngest son of Mr. and Mrs. W. H. J. Presland, of Walthamstow, and Eileen, eldest daughter of Mr. and Mrs. P. Maccullum, of Beckenham, Kent.

BIRTHS.

BAILEY.—On Apr. 19, at St. Quentin, Stow Park Circle, Newport, Mon., to Margaret (née Davics), wife of George Bailey, D.F.C.—a son.

HENDERSON.—On Apr. 22, 1927, at Midland, Andover, to Elisabeth, the wife of Sq. Ldr. Malcolm Henderson, D.S.O., R.A.F.—a son.

PURVIS.—On Apr. 20, at Gilmerton, Fife, the wife of the late Flg. Off. J. H. C. Purvis the younger of Gilmerton, R.A.F.—a son.

SAWYER.—On Apr. 15, at Felixstowe, to Mary, wife of Flt. Lt. G. Sawyer, A.F.C., R.A.F.—a son.

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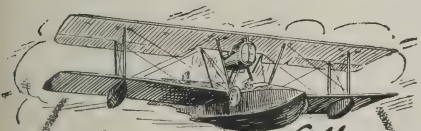
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Edited by
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MAY 17 1927

UNIVERSITY OF ILLINOIS

Vol. XXXII. No. 18.

SIXPENCE WEEKLY.

[Registered at the G.P.O.
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VOL. XXXII.

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ON THE I.C.A.N.

During the past week there has been sitting in London a Congress composed of the delegates from various countries to an international organisation entitled officially the "Commission Internationale de Navigation Aérienne" or the "International Committee for Air Navigation," which is known as the C.I.N.A., or the I.C.A.N., and is pronounced "Seena," or "I can," according to whether one speaks the Anglo-Saxon or Mediterranean languages. Judging by the lovingkindness which prevails among the various delegates and from what one hears of the amicability of their proceedings when in session it would seem that the C.I.N.A. is much more like a League of Nations than is the grandiose affair at Geneva.

In the old days of the Royal Naval Air Service there used to be an officer whose official title was the Inspecting Captain of Aircraft, and was familiarly known as the I.C.A. One holder of the office was so famous for his contentiousness that people generally held that the initials stood for "I can't agree." In the matter of agreement the C.I.N.A. seems to justify its other appellation "I can." Let brotherly love continue.

After sitting vigorously for two days the delegates of the various nations were entertained on Tuesday night by His Britannic Majesty's Government at Lancaster House, which used to be Sutherland House, and is now the London Museum. The dinner was done on a scale worthy of the reputation of the British Empire for the production of goods of the best quality, and if on Wednesday the plenary session, which means the grand finale of the performance, with full chorus, did by any chance lack the beautiful unanimity of previous sittings any exacerbation which was visible must be ascribed to the livers produced by Government Hospitality. If on the other hand peace prevailed as usual, that may be ascribed to the beatitude of the well-fed.

THE HONOURED GUESTS.

At the banquet Sir Samuel Hoare was in the Chair with the perennial M. Pierre Etienne Flandin on his right and M. Zdenko Janák, of Czecho-Slovakia, on his left.

M. Flandin may be regarded as the head centre of Civil Aviation in France. He was under the War Minister as Under-Secretary of State for Aeronautics and Aerial Transport in 1919 and he held that post through successive administrations till the rate of revolution of the French Cabinet became so high that he was thrown out, apparently by centrifugal force, to be succeeded by M. Laurent Eynac, who also held on grimly till finally the R.P.M. jettisoned him and the office of *Sous-Secrétaire d'Etat de l'Aéronautique et Trans-*

ports Aériens as well. But happily M. Flandin is still with us as President of the Aero Club of France, and so at intervals people are privileged on such occasions as these to listen to his perfect speaking of the French language and his exquisite wit.

At the high table were also Sir Joseph Cook, the High Commissioner for Australia; M. Hiroyuki Kawai, the Japanese Delegate; Sir Philip Sassoon (our present Under-Secretary for Air); General Constantine S. Dumitrescu (the Roumanian Delegate); Lord Thomson (whether in his capacity as an ex-Secretary of State for Air or as Chairman of the Royal Aero Club Committee), the Viscount Burnham (whose precise connection with aviation is not evident beyond the fact that he takes an interest in the harmless Air League and employs a very able aeronautical correspondent on *The Daily Telegraph*), the Viscount Peel (as First Commissioner of Works), General Piccio (the Italian Delegate, who was one of the World's greatest fighting pilots of the War 1915-18), Major-General J. E. B. Seely (a former Under-Secretary for Air), Major Count Michalowski (the Polish Delegate, who is also the Polish Military and Air Attaché in this country and flew as an Austrian officer during the War), the Duke of Sutherland (another former Under-Secretary for Air), Colonel Ostovitch (the Yugo-Slavian Delegate and Military Attaché), and finally Mr. J. S. Smit, the High Commissioner for the Union of South Africa.

By way of indicating the importance of the conference from the intellectual standpoint, and to show that it is not, like so many air conferences, both international and home-grown, merely a hot-air conference, there is interest in giving a list of the various foreign delegates who were also present. These were:—

M. José R. Echeverría (Chile), Luang Jamni Kolakarn (Siam), M. Emile Allard (of the Belgian Section Technique), M. Carlos A. Pons (Uruguay), Colonel Hiam (of the League of Nations), M. D. A. Naoumoff (Bulgaria), M. Félix Camerman (Director of Civil Aviation in France), M. Albert Roper (General Secretary of the C.I.N.A.), M. Jacques Sabatier (the Airworthiness official of the French Service Technique), M. le Vicomte Max Vilain XIII (of the Belgian Delegation, and the owner of a private aeroplane), Commander Brivonesi (of the League of Nations), M. Michel Guibert (the French wireless chief), General A. Guidoni (the Italian Air Attaché), M. Edmond Sudré (a French legal luminary), M. Daniel Haguenau (of the French Delegation), General Cav. Rodolfo Verduzio (the technical member of the Italian Delegation, and noted for his airship work), Cav. Uff. Dott. Salvatore Cacopardo (the legal member of the Italian Delegation), M. F. de Jouffroy (Assistant Secretary to the C.I.N.A.), Lt. de Vaisseau J. M. Bos (the French Air Attaché), M. Julien Pillaut (the French legal member).

The absence of certain important nations is noticeable.



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Germany is not represented, but is expected to join before the next meeting.

BRITISH REPRESENTATIVES.

The names of the British representatives also deserve to be recorded, as showing the reasons for their presence. They were:—

Sir Walter F. Nicholson (Secretary of the Air Ministry), Lord Gorell (formerly Under-Secretary for Air), Mr. F. G. L. Bertram (Deputy-Director of Civil Aviation), Air Vice-Marshal D. Munro (Chief of the R.A.F. Medical Service), Sir Geoffrey Butler (founder of the University Air Squadron idea), Mr. C. L. Bullock (private secretary to Sir Samuel Hoare), Lt.-Col. E. Gold (British Meteorological member), Group Capt. Martin Flack (British medical member), Mr. R. J. Goodman Crouch (British airworthiness member, and chief of our stress department), Air Commodore L. F. Blandy (British wireless member, and chief of our wireless department), Flight Lieut. H. Edwards (Canadian Liaison officer), Mr. R. L. Megarry (British legal member), Flight Lieut. J. R. Bell (Australian Liaison officer), Mr. E. E. Beare (Secretary for Government Hospitality), and Mr. A. J. B. Rutherford.

THE SPEECHES.

The after-dinner speeches were commendably few and brief. SIR SAMUEL HOARE, proposing our Guests, said that the I.C.A.N. had played a useful part in developing Civil Flying during the seven years of its existence. The agreement of its members on such things as the registration of aircraft, the recognition of certificates of airworthiness and licences, the establishment of customs aerodromes, and the rights of flying over foreign States, had brought a measure of order and mutual help where there would otherwise have been anarchy and national suspicion.

Its influence was extending as year by year civilised communities realised the necessity of co-operation. States which had not hitherto been members were now anxious to join and as its membership became more comprehensive its influence and usefulness would increase.

As to the questions which had been discussed at this meeting he would only comment on the fact that at a moment when the British Government was engaged in giving equal rights to women on the ground the I.C.A.N. proposed to give equal rights to women pilots in the air. The interest of women in flying had been one of the conspicuous features of Civil Aviation during recent years. [One might remark that the interest of women in flying has been equally conspicuous ever since the earliest days. In fact the number of women pilots in the first year or two of aviation was probably higher in proportion to the total number of pilots than it is to-day. There were at least three women pilots in France as early as 1909. The first British woman pilot, Mrs. Hewlett, owns Certificate No. 112, and the second, Mrs. Stocks, is No. 153. One doubts whether the proportion is as high to-day. Incidentally, it is worth while noting in these days, when we are priding ourselves on the expansion of aviation, that between Jan. 1 and Dec. 31 of 1912, the Royal Aero Club granted certificates to 214 aviators, Nos. 168 to 382, so there must have been something of a boom in aviation in those days.]

Sir Samuel remarked that according to the newspapers an enterprising German lady had arranged to be married in an aeroplane, but had wisely decided to have the wedding breakfast on terra firma. [One seems to remember an American wedding in an aeroplane before the War, so Europe is as usual a long way behindhand.]

Reverting to seriousness, Sir Samuel said that in England we were glad to take counsel with men whose knowledge we appreciated, and we were glad to have such friendly co-operation.

Civil air lines, he said, still needed heavy Government subsidies. Only a small percentage of the travelling public used them, and there were still more people who did not believe in their future. Admitting these facts, we should remember the considerable progress which has been made since the

International Air Convention was signed in 1919. In that year rather more than 1,000,000 miles were flown on regular air services. In 1926 the mileage was over 16,000,000. Machines of to-day were two or three times more powerful than in 1919 and carried three times as many passengers. In 1919 the French service to North Africa carried 9,000 letters between Toulouse and Morocco. In 1925 it carried 7½ million letters. Freight insurance premiums were to-day 6s. 8d. per cent. for sea or land transport and only 2s. for air transport. The new three-engined machines recently adopted by Imperial Airways were run at less than half the cost per ton mile of the single-engined machines of 1922. If during the next ten years we could achieve equally satisfactory progress by concentrating upon first the safety of the traveller, secondly on his comfort, and thirdly on bringing down operating costs, we could hope to see a greater advance than any since 1919.

[If we have saved half the cost of running since 1922, and progress at the same rate, then in five years' time we should be running for nothing at all and five years after that we should be paying a 50 per cent. dividend on running costs. That is unless there is a mistake in one's methods, which seems to be on the lines of that of the Irishman who, seeing an advertisement of a gas stove which was guaranteed to save half the gas bill, exclaimed "Well then, let's buy two of them and save it all."]

As to the future development of flying Sir Samuel said that all those present were attempting to make aviation an asset and not a liability to the human race, and that we all desired to develop flying for the purposes of peace, trade and intercourse, and to restrict flying as far as possible as an instrument of destruction. To-day in London the commission was considering the methods that should best be employed in developing aviation for peace. In Geneva our representatives were considering the possibilities of restricting military aviation. Speaking as a representative of His Majesty's Government he could say that we were as keenly interested in the one side of the problem as in the other.

We in England had taken the view that the best hope of restricting air armaments was to move step by step rather than to attempt an immediate solution of a great and complicated problem, whereas, if we attempted to deal with all the problems at once, advance would be made impossible or would be considerably delayed. That was why the British representative at Geneva proposed that in the matter of air armaments we should deal first with the simplest subject namely, the risk of the great cities of Europe from sudden attacks by air forces within reach of them. Other countries wished rather to consider all questions simultaneously.

In deference to their wishes the British Government had agreed to widen the problem as the others desired. Nevertheless he, Sir Samuel Hoare, felt nervous lest in the final stages of making a treaty, when the actual question of numbers of machines came to be settled, this widening of the problem should force nations to put in very high demands for their own requirements. [Let us hope they do. Nobody with any historical sense believes in reducing air armament. It is our only defence against the hordes of Asiatics to the East of Warsaw.]

He said that he was most anxious that this attempt to achieve some measure of air disarmament should succeed, partly his desire was in the interests of Civil Aviation, but still more in the interests of humanity.

Wishing a successful termination to the labours of the Committee in London he wished a no less successful end to the labours of all our representatives in Geneva. We should all work to make aviation beneficial to humanity and to make the air safe for travel and commerce and friendly intercourse between the citizens and nations of the World. [And we should all work still harder to assure our defence against Eastern barbarians. That is surely in the best interests of humanity.]



"SOMETHING ABOUT ELEVEN."—Imperial Airways inaugurated the new Silver Wing Service to Paris by taking guests for a trial trip at Croydon. The picture shows the queue for what an onlooker called "the aerial Long Bar" (vide the "Commercial Aeronautics" section of this paper).

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The Royal Air Force Cape Flight, from Cairo to Cape Town and back to England, was carried out by four Fairey III-D aeroplanes each fitted with a single Napier engine—56,000 engine miles were flown without change of engine or any mechanical trouble.

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M. PIERRE ETIENNE FLANDIN, in reply, remarked what a fine example to Civil Aviation Sir Samuel himself had set by flying to India. As to disarmament, he said that France was anxious for disarmament but feared that if there was too much advance in this direction she might find herself at a disadvantage as regards defence. He remarked that he himself was always talking on the subject of Civil Aviation and that Civil Aviation did not cost as much as Military Aviation. He complimented the Anglo-Saxon race on its modesty in relation to the work it had done for aviation.

GENERAL PICCIO, who talked in French as being more familiar to him than English, though, incidentally, his English is extraordinarily good, said that there had been great enthusiasm in Italy over Sir Samuel Hoare's voyage to India which had stimulated commercial aviation in that country. He himself had never been a partisan of disarmament.

MAJOR-GENERAL THE RIGHT HONOURABLE J. E. B. SEELY said that he had been privileged for many years at these gatherings to propose the health of the Chairman. Sir Samuel Hoare was certainly the first Secretary of State to take his wife with him on an air journey. Referring to the perennial M. Flandin, General Seely reminded him of a conversation just after the War. He (General Seely) had asked, "How goes it in the Air?" and M. Flandin had replied, "The pilots are tired, the machines are more tired and the Governments are altogether tired." Governments ought not now to be tired.

He said that we were all rejoiced to meet under the presidency of a man who had done as much as Sir Samuel, and he was glad to meet everybody on terra firma. Probably after all the hospitality we had had we might wish that the terra were firmer. He proposed the health of Sir Samuel and the Lady Maud Hoare.

Sir Samuel in replying said that General Seely was one of the oldest pioneers of flying, for as Secretary of State for War he had been responsible for the beginning of Military Aviation in this country.

THE COMPOSITION OF THE I.C.A.N.

The recent sitting of the I.C.A.N. was actually its twelfth. The parties to the convention are:—(1) Belgium, (2) Great Britain and Northern Ireland, (3) Canada, (4) Australia, (5) Union of South Africa, (6) New Zealand, (7) Irish Free State, (8) India, (9) Bulgaria, (10) Chile, (11) France, (12) Greece, (13) Italy, (14) Japan, (15) Persia, (16) Poland, (17) Portugal, (18) Roumania, (19) Kingdom of the Serbs, Croats and Slovenes, (20) Siam, (21) Czechoslovakia, (22) Uruguay.

How far short of being truly international the Commission actually is, may be judged by the fact that all the Scandinavian nations, Holland, Germany and Switzerland, are not parties to the Convention. Also, Spain is not a member. So that interferes considerably with the unanimity of European Aviation.

Still, everything must have a beginning, and if those nations do come in the Commission will, as the Americans say, cut some ice so far as Europe is concerned. But until they do the agreements between the present members are really of little more than local value.

PERSIAN IMPUDENCE.

One rather amusing side issue of the Convention is that although Persia is a member of the Convention and should therefore be doing everything possible to help international aviation, even though Persia has no aeroplanes of its own worth talking about, Persia has the impudence to cut our Imperial air route by forbidding the landing of Imperial Airways air liners at Persian aerodromes on their way between Basra and Karachi.

Persia's own air fleet, apart from the Junkers passenger machines and some Russian adventurers, consisted recently of one aged German machine with a war-time Mercedes engine and a miserable Armenian pilot. An R.A.F. pilot from Iraq visited Teheran and showed what real flying can be. So the Persian Commander-in-Chief ordered the Persian fleet to go up and do likewise. Unfortunately one cylinder of the Mercedes was missing—actually absent, not misfiring. But the Armenian had to do as he was told, with five cylinders. Naturally he crashed in getting off. So forthwith he was carted off to jail instead of to hospital. And that ended the air efforts of our fellow-Commissioner.

Be it said in favour of Persia, that when the R.A.F. pilot wanted to start for home and found that as the wind was his start was cramped by some houses, the Persian Army turned out its battery of artillery and blew down the houses which were in the way. Which sounds like comic opera though it happens to be history.

When a country like Persia starts being obstructive one feels inclined to sympathise with the factitious and fractious Colonel Grundt, the friend of Benchomber of *The Daily Express*, who is always writing postcards advising England to "take a whack at" some nation or other, or to "lace out at" somebody who has offended us. In the good old days

of Queen Victoria and Palmerston, if such an incident had occurred as the hindrance of an Imperial airway we should simply have landed a few troops at each of the stations on the Persian Gulf and have put down our petrol tanks and put up our wireless masts and have told the Persians to interfere with them at their own risk.

As it is, of course, the line has to be held up for months and months while our diplomats humiliate themselves and us by negotiating with mere Persians, when any English soldier could defeat a Persian regiment with his boots and bare hands. It only shows the futility of Leagues of Nations and International Conventions when nations of such a sort are admitted. Personally one prefers the old-fashioned system of an alliance between strong nations to make the others do as they are told.

THE I.C.A.N. AND AMERICA.

The I.C.A.N. is equally futile in the Americas. Uruguay which has little or no aviation, has for some reason or another taken it into its head to join the I.C.A.N. But most of the countries where real flying is done still stand out. The Argentine, Brazil, Peru, and even Colombia and Bolivia are not parties to the Convention.

The great Pan-American flight by pilots of the U.S. Air Corps on Loening amphibians has stirred up an immense amount of enthusiasm in South America, so probably sooner or later there will be a Pan-American Commission for Air Navigation. We can only hope that when it comes into being it will arrive at a friendly understanding with the I.C.A.N. which may by that time include the Nordic European nations which really matter. Canada, which would naturally be a party to both Conventions, would then be the connecting link between the two.

Nevertheless, and despite the futility of the existing Commission, the delegates to the recent meeting, as one has already said, include a number of the best brains in European aviation, so there is every reason to hope for its ultimate success.

WHAT THE COMMISSION HAS DONE.

There is considerable interest in recording the more important resolutions taken by the Commission at this last meeting. The list which follows hereafter will show how varied has been the work done:—

(A) The Commission has adopted a new chapter concerning the standard minimum requirements for airworthiness certificates (technical conditions relating to the validity of renewal of such certificates).

This is naturally a highly technical matter. The endeavour apparently is to arrive at some agreement by which each nation can trust the airworthiness of machines built in other countries. There seems to be no real objection to a standard of minimum requirements so long as we in this country maintain our own standard and make it considerably higher than those of foreign countries. British goods are always sold on quality and not on price. So the last thing we want is to raise the standard of other countries to the level of our own.

(B) The Commission has provided for the requirements of the medical examination to be undergone by pilots in regard to liver complaints.

One gathers that for some curious reason the medical people of all countries have hitherto forgotten to allow for the effect of the liver on the eyes. There is the old story of the member of a shooting party who, after a hectic night, said that he got a grouse with his left barrel and a liver-spot with his right. So there is always a possibility that a liver spot might make the difference between a good landing and a crash.

(C) The Commission has established a supplementary code for the transmission of certain meteorological information.

Undoubtedly the more transmission of such information there is the better.

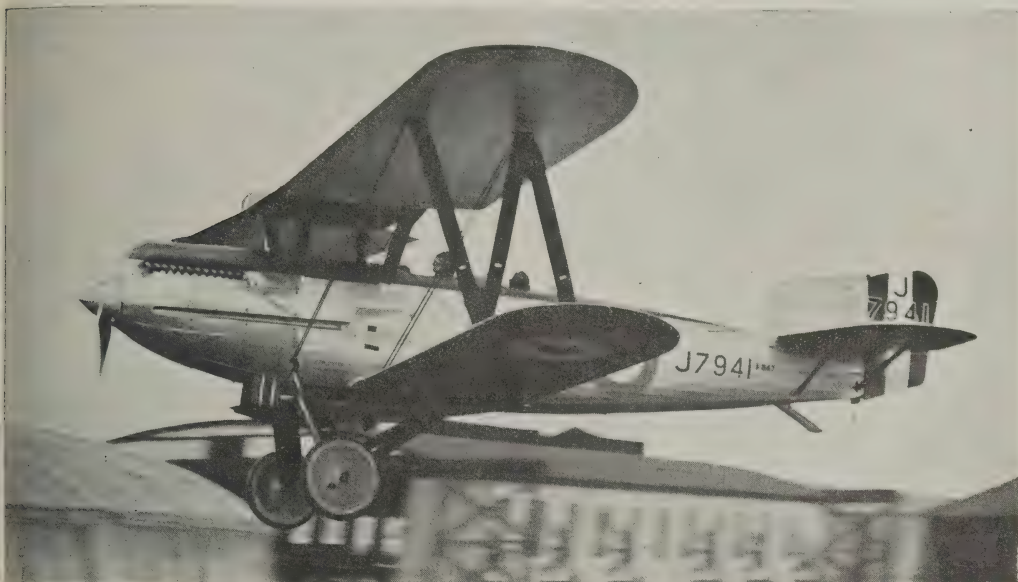
(D) The Commission has adopted a new table of general classification of aircraft.

When this new table is published it will be found to be very interesting. One gathers that it gets over the old clumsy divisions of "heavier-than-air craft" and "lighter-than-air craft" by classing all the lighter-than-air vehicles as *aerostats* and all the heavier-than-air as *aerodynes*. These are nice short handy words whose meaning is obvious, even though the word aerodyne does sound rather like a disinfectant, and in due course they will come to be adopted even by the daily Press.

Also one is told that the word "gyroplane" will be brought into use for the good reason that the Autogiro, which is a trade name and not a class name, actually flies, whereas all the other comic vehicles such as helicopters, ornithopters, orthopters and so forth only exist on paper or on the ground. But it must not be confused with the late lamented Davidson Gyroplane, which was a building for about twenty years.

Incidentally, no special certificate of competency is required by a pilot of a gyroplane. His ordinary licence is regarded as enough.

(E) The Commission has settled the medical conditions for the competency of women for piloting aircraft.



"Flight" Photo.

An Impression of the FAIREY "FOX" day bomber,

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There is no particular use in arguing as to the competency of women as pilots of aircraft flying for hire. Their future as professional pilots will be settled not by rules and regulations but simply by the insurance companies. There is not much likelihood of any insurance company being willing to insure an aircraft piloted by a woman at the same rate as if it were piloted by a man. And consequently there is not much likelihood of women being employed as pilots of air liners or even of taxi or joy-ride machines.

Apart from which the medical examination to which women must necessarily submit themselves before they can be trusted to pilot an aeroplane "for hire or reward"—owing to the physiological composition of the female animal—will probably prevent any woman from applying for a "B" certificate. According to the provisions of the Commission the examination is as thorough and as intimate as is that on which most Continental nations insist for women plying for hire or reward in what Kipling has called "the oldest profession in the World."

(F) The Commission has studied the identification of aircraft ensuring international transport interesting the League of Nations.

Apparently the League of Nations has been seized by a desire to have super-national or extra-national aircraft of its own for communication purposes. Which seems a sufficiently harmless ambition.

The I.C.A.N. has struck the original notion of identifying such aircraft by the simple method of not having any initial letter, but having the group of four letters which usually follow the initial letter intersected by a horizontal line of the same thickness as the letters themselves,—as if the letters had been cancelled by a stroke drawn through them.

(G) The Commission has examined an apparatus enabling aircraft to send out automatically the S.O.S. signal by wireless telegraphy when in distress.

This means another gadget on the aeroplane, but so far, seemingly, there is no obligation to use it.

(H) The Commission has continued to simplify the model for the Journey Log Book.

And quite time too. The amount of documentary evidence which the unfortunate pilot has to provide for his machine, his engine and himself is becoming so great that he has to sit up half the night after his day's work filling up his log books. Apparently the Commission is working in the direction of reducing the number of columns to the page.

(I) The Commission has established precise regulations for navigation on air routes over and in the vicinity of those air routes.

This, one gathers, relates to such things as the habit which pilots have of flying directly along certain railways or rivers or roads. The regulations are in the direction of obliging pilots to keep outside a certain number of hundreds of yards to the right of the line which they habitually follow, so that in times of bad visibility there may be no danger of head-on collisions, such as that in which Mr. Duke was killed in the early days of civil flying.

Of course such a regulation can only work when pilots are flying by map as well as by compass. When flying blind by instruments, they must trust in God and not in the I.C.A.N.

(J) The Commission has adopted a new International distress signal P.A.N. to be used whenever aircraft shall be in difficulty, but not in the necessity of having to use the S.O.S. signal.

Just how the pilot of an aircraft is to decide whether his difficulty is such as to justify an S.O.S. signal or merely a P.A.N. signal does not seem to have been decided.

So far as can be gathered the whole of this discussion arises from the fact that the French like the P.A.N. signal because it is based on the expression "*en panne*" which implies a breakdown of a car or locomotive or any other vehicle. An S.O.S. signal means that there is urgent need of help. If the P.A.N. signal means that there is no urgent need of help, why make a song about it at all?

(K) The Commission has recommended to the different States the marking of posts of electric power transmission lines in the vicinity of aerodromes.

This seems quite a reasonable provision and should not be at all hard to arrange. But one gathers that there will be no need for the tramway lines in this country to turn their posts into totem-poles.

(L) The Commission has examined the measures to be taken concerning aerial navigation in regards to wireless telegraphy, in view of the International Conference at Washington which will be held at the end of 1927.

This of course is very much a matter of the future. But there is interest in recording that Air Commodore Blandy, the Wireless Chief of the Air Ministry, has been appointed the representative of the I.C.A.N. at Washington, besides being the senior British delegate.

(M) The Commission has simplified the signals by pyrotechnical lights in case of night landings.

There certainly seems to be room for simplification. The abolition of the present firework displays may disappoint the children but certainly pilots will not regret it.

The new landing signals are to be a series of flashes of navigation lights by the machines, and flash-light signals from the ground.

(N) The Commission has decided to study several items among which are noted:—

(i) Projection to be adopted for the International general aeronautical Map of the Polar regions.

Of course, if any air line wants to make a sort of Inner Circle round the North Pole, good luck to it. But one imagines that many years will pass before the route is at all commonly used. As Major Moyes remarked, when asked to join an airship expedition to the Pole,—“It's very cold. And besides one doesn't know anyone there!”

(ii) Study of the unification of terms and symbols used in aeronautical techniques.

Here there is certainly room for good work. The standard glossary composed by the Aeronautical Terms Committee of the British Engineering Standards Association, which is more or less in agreement with the American glossary, might very well be used as the basis of such unification.

(iii) Unification of the characteristics required in respect of material used in aeronautical construction.

This is another good piece of work. There certainly seems to be little use in having one kind of strength test for material in one country for example while another country uses quite different methods and quite different standards of measurement. Obviously no standard minimum requirement for airworthiness certificates can be reached unless the system of testing material is unified.

(iv) Study of the question of hangar accommodation for flying machines at terminal aerodromes.

Apparently the country owning the aerodrome is, somehow, naturally, entitled to determine the amount of accommodation. The international question seems to be, what is the size of “an aeroplane”? Which is rather like “How big is a piece of chalk?” or “How long is a piece of string?” However, the Commission seems to have fixed on a span of 3 metres (say 99 feet) as a maximum span for which accommodation must be provided. And it seems to have fixed on five years as the time which still must pass before all aeroplanes will have folding wings (Shades of Horace Short and his 1913 seaplane!)

(v) Study of the status of chartered aircraft.

This raises some quite interesting questions. For example, if a man charters an aircraft which commonly plies for hire or reward does that machine remain under the provisions for public vehicles in such matters as daily inspection and certification by ground engineers? Or is it thereafter to be treated as a privately-owned machine, the owner of which does not have to trouble about inspection by ground engineers every day? The case of the Löwenstein Air Fleet seems to have raised the question.

(vi) To determine the form of the certificate of airworthiness for airships.

The answer to this seems to be, “first catch your airship.” Certainly nobody on this earth at the present moment properly qualified to judge whether an airship is airworthy or not. The best that can be done by anybody is to prove by ordinary engineering methods that something or another is too weak for its job or to show by ordinary common-sense argument that something or other is in a dangerous place.

(vii) To examine further the question of navigation lights required by aircraft.

There seems to be very little the matter with the present arrangement of navigation lights. What most wants altering is our own particular Air Ministry requirements as to the fitting of navigation lights. Compared with some other nations we throw away many ton-miles of freight-carrying per annum because of the weight of our electric installations.

Taking it all round this session of the I.C.A.N. has done very good work, and the hardworking members of the Commission deserve every bit of their rest till next October. One wishes them a good mental digestion of the problem before them in the meantime.—C. G. G.

THE AIR SURVEY LECTURE.

The lecture which Major H. Hemming is to deliver to the Institution of Aeronautical Engineers on Air Survey will be given on Thursday, May 12, and not on May 10, as originally stated. Also it will be given at the Royal Society of Arts, John Street, Adelphi, and not at the Victoria Street rooms.

It will be of considerable importance to everybody concerned with the commercial side of aviation. The Chair will be taken at 8.15 p.m. by Sir William Clark, K.C.S.I. C.M.G., Comptroller-General of the Department of Overseas Trade, and formerly a member of the Indian Legislature. Mr. Amery, Secretary of State for the Colonies, hopes to be present.

Major Hemming will deal with the commercial aspect of air survey work, and not solely with the technical, photographic, and map-making side. Therefore his lecture will be equally of interest to the business men of the Aircraft Industry and to aircraft designers who wish to study the problems of survey from the point of view of reducing cost by designing proper machines for the job.

One hopes that super-enthusiastic members of other societies will not intervene to cause indefinite postponement as happened in the arrangement of a dinner which the Institution organised a few weeks ago.—C. G. G.



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The London Gazette.

Apr. 26.

GENERAL DUTIES BRANCH.—The following are granted temp. comms. as Flg. Offs. on attachment for four years' duty with the R.A.F. (Apr. 19).—**LIEUTS.** R.N.—S. Borrett, H. W. Metcalfe. **SUB-LIEUTS.** R.N.—C. A. Kingsley-Rowe, L. J. S. Ede, J. C. Richards, P. Bethell.

The following Plt. Offs. are promoted to the rank of Flg. Off.:—**L. C. Barling** (Mar. 12); **S. H. White** (Mar. 28); **E. A. T. Murray**, I. A. Anderson, **D. J. Harrison**, **F. F. Barrett** (Mar. 30).

Plt. Off. on probation **F. S. Smythe** relinquishes his S.S. comm. on account of ill-health (Apr. 27).

MEDICAL BRANCH.—The following relinquish their temp. comms. on ceasing to be employed:—**Flt. Lt. (Hon. Soc. Ldr.) H. B. Smith**, M.B. (Apr. 6); **Flt. Lt. A. E. Jenkins** (Apr. 4).

RESERVE OF AIR FORCE OFFICERS.—The following Flg. Offs. are transferred from Class A to Class C:—**W. R. K. Atkinson** (Jan. 29); **W. B. Kelly** (Apr. 16); **C. Sutton** (Apr. 17); **A. E. T. Bruce** (Apr. 23).

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—The following to be Plt. Off.:—**No. 605 COUNTY OF WARWICK (BOMBING) SQUADRON.**—**G. V. Perry** (Apr. 26).

Appointments.

Week ending May 2.

GENERAL DUTIES BRANCH.—**Wing Commanders** T. O'B. Hubbard, M.C., A.F.C., to Station H.Q., Birmaham Newton, to command, 2/4. **J. T. Babinington**, D.S.O., to R.A.F. Base, Gosport, to command, 27/3. **B. E. Smythies**, D.F.C., to 99 Sqn., Birmaham Newton, to command, 30/4. **L. T. Leigh-Mallory**, D.S.O., to School of Army Co-operation, Old Sarum, to command, 11/4. **V. Gaskell-Blackburn**, D.S.C., A.F.C., to No. 21 Group H.Q., West Drayton, for Technical Staff duties, 2/4. **W. J. Ryan**, C.B.E., to R.A.F. Depot, Uxbridge, 2/4.

Squadron Leaders P. A. Shepherd, to R.A.F. Practice Camp, Weston Zoyland, 1/4. **A. R. Arnold**, D.S.C., D.F.C., to R.A.F. Practice Camp, Sutton Bridge, 1/4. **E. D. Atkinson**, D.F.C., A.F.C., to No. 1 Sqn., Tangmere, 21/4. **G. E. Livock**, D.F.C., to H.Q., Coastal Area, 19/4. **A. Durston**, A.F.C., to R.A.F. Practice Camp, North Coates Fitties, 1/4.

Flight Lieutenants D. H. Carey, to Air Ministry Directorate of Training, 7/12. **T. M. Williams**, M.C., D.F.C., to No. 423 Flight, Malta, 21/1. **W. Underhill**, D.S.C., to R.A.F. Base, Calshot, 28/4. **E. D. Davis**, to R.A.F. Practice Camp, Weston Zoyland, 1/4. **A. L. A. Perry-Keene**, to R.A.F. Practice Camp, North Coates Fitties, 1/4. **J. D. S. Denholm**, to R.A.F. Practice Camp, Sutton Bridge, 1/4. **C. F. Horsley**, M.C., to H.Q., R.A.F., Middle East, 7/4.

Flying Officers C. J. Stone, to R.A.F. Practice Camp, Weston Zoyland, 1/4. **T. H. Finney**, to R.A.F. Practice Camp, North Coates Fitties, 1/4. **C. H. Roberts**, to R.A.F. Practice Camp, Sutton Bridge, 1/4. **E. S. Osborn**, to No. 2 Sqn., Manston, 6/4. **J. W. Vanderbeek**, to No. 12 Sqn., Andover, 14/4. **E. V. S. Lacey**, to Home Aircraft Depot, Henlow, 29/4. **E. S. Burns**, to R.A.F. Station, Donibristle, 25/4. **J. V. Reeve**, to R.A.F. Depot, Uxbridge, 6/4. **J. F. Tadmam**, C.G.M., to R.A.F. Depot, Uxbridge, 6/4. **G. C. Lugg**, to R.A.F. Depot, Uxbridge, 6/4. **L. A. Eggesfield**, to R.A.F. Depot, Uxbridge, 6/4. **G. H. Bennett**, to Aircraft Depot, Italia, 27/3. **J. E. L. Drabble**, to R.A.F. Depot, Egypt, 26/3. (Hon. Plt. Lt.) **F. L. Woleidge**, to No. 4 F.T.S., Egypt, 26/3. **H. D. Mitchelmore**, to No. 4 F.T.S., Egypt, 26/3. **J. E. Davies**, to No. 4 F.T.S., Egypt, 26/3. **G. J. Southam**, to No. 2 Armoured Car Coy., Palestine, 6/4.

Pilot Officers G. R. T. Clarke, to No. 58 Sqn., Wortley Down, 26/4. **G. H. Godwin**, to No. 9 Sqn., Manston, 26/4. **J. H. Pool**, to No. 11 Sqn., Netheravon, 28/4. **L. S. Tindall**, to No. 11 Sqn., Netheravon, 3/5. **B. W. Barton**, H. B. Collins and C. E. Kay, to No. 5 F.T.S., Sealand, 26/4. **F. H. L. Searl** and **W. T. Walton**, to No. 5 F.T.S., Sealand, 3/5. **A. R. Ward**, to No. 5 F.T.S., Sealand, 28/4.

MEDICAL BRANCH.—**Group Captain** C. E. C. Stanford, D.S.O., M.B., B.Sc., to R.A.F. Depot, Uxbridge, 26/3.

Wing Commander F. N. B. Smartt, M.B., B.A., to R.A.F. Depot, Uxbridge, 26/3, and to H.Q., Wessex Bombing Area, Andover, 13/5.

Flying Officer R. Thorpe, to No. 13 Sqn., Andover, 27/4.

STORES BRANCH.—**Squadron Leader** P. Adams, to the Packing Depot, Ascot, 7/4.

Flying Officer W. Best, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 20/1.

ACCOUNTANT BRANCH.—**Flying Officers** F. R. Barton, to No. 1 School of T.T. (Apprentices), Halton, 26/4. **J. J. Caiger**, to No. 47 Sqn., Egypt, 24/3.

The Committee of Imperial Defence.

The members of the Committee of Imperial Defence, including Marshal of the R.A.F. Sir Hugh Trenchard, were present at a Cabinet Meeting at 10, Downing Street, on Apr. 27.

The Service African Tour.

The R.A.F. Flight under Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., which is returning from the Cape, arrived at Grahamstown on Apr. 25 and Durban on Apr. 29. The R.A.F. and South African Air Force Flights arrived at Pretoria on May 2.

The 1927 R.A.F. Display.

The Air Ministry announces that:—The eighth Royal Air Force Display will take place on Saturday, July 2, at Hendon Aerodrome.

The programme of this annual display which is an integral and important part of the training of the R.A.F., has been arranged to demonstrate the efficiency and airmanship of Service Squadrons in a series of air evolutions that will hold the sustained interest of spectators.

New features are being introduced which will enable the public to appreciate the developments that are constantly taking place in the air arm, while events that have proved popular in past years are retained or are being revived.

The flying parade of new types of war and civil aircraft should again emphasise the advance in British design.

As a result of the purchase of Hendon Aerodrome by the Air Ministry last year, arrangements have been made to improve accommodation and traffic facilities at the aerodrome. In addition to road improvements a grand stand with a seating capacity of 3,000 is in course of erection in the ten shillings enclosure.

Special attention has also been devoted to the catering problem, and it is hoped that the new arrangements will ensure adequate service.

The proceeds will be devoted, as in the past, to Royal Air Force Charities.

The Addams Cup.

The inter-Flight competition for the Addams Cup took place at Northolt Aerodrome on Apr. 26.

The Cup was won by "B" Flight commanded by Flt. Lt. C. A. Boucher.

The Addams Cup was presented to No. 41 (Fighter) Squadron by the mother of the late Flg. Off. A. C. Addams, for inter-Flight competition. Marks are awarded for aerobatics, formation flying and radio-telephony.

The Energetic Medicine-Man.

The Annual Report on the Health of the Royal Air Force loses a great deal of its interest because it is always issued so long after the period to which it refers.

The Report for the year 1925 has only appeared at the end of April, 1927. One has it on excellent authority that the R.A.F. Medical Branch is an overworked body which spends its few leisure hours learning to fly or jumping out of aircraft accompanied by the nimble parachute (Authority K.R. 1483, amendment 24/1926 and the Royal Aeronautical Society's Lecture of Apr. 7, 1927), but even so it is difficult to understand why it takes 16 months to produce this cheerful little document.

To cast our minds back to 1925, the Director of Medical Services in submitting his Report states that the incidence of sickness and the number of days sickness per head were lower that year than had previously been recorded. The average duration of each case was however slightly higher.

One gathers from this that although being in the hands of the Medical Branch becomes less popular each year, the hospitals themselves are more comfortable.

Ninety-one per cent. of the officers of the General Duties Branch were fit for full flying duties, the highest figure so far recorded. So the supporters of the alcohol-before-breakfast-in-the-R.A.F. theory will have to think of something new. These claims of the Director of Medical Services are very clearly and definitely substantiated by a number of tables of sickness in the Force showing the year under review and corresponding figures for previous years.

The analysis table of injuries during the year shows that athletics are responsible for 851 cases with 5 deaths, the five deaths being due to drowning while bathing. Motor transport accounts for 400 with 18 deaths and flying for 155 with 54 deaths. The number of injuries caused by aircrews was 33 compared with 42 cases in 1924.

The Medical Service is defeating the sand-fly in the Mediterranean Littoral, but the sand-fly is holding its own in India and is slightly ahead in Iraq.

During the year 26 medical officers attended courses of instruction at the Medical Officers' School of Instruction and Medical Research Laboratory, including two from the Navy, one from the Irish Free State Army Medical Corps and one from the Czechoslovakian Army Medical Service.

Experiments were carried out in the Research Laboratory with the flying aptitude apparatus and to provide a means of mitigating the effect of noise in large aeroplanes.

The standard of fitness of the R.A.F. Reserve of Officers was closely comparable with that of the Regular R.A.F. Officer.

During the year 176 cases were transferred by air in Iraq. The actual number of journeys was 81 and the miles flown by machines on this duty were 14,492.

The Report reads:—

At home, in India, Egypt and Palestine a few cases which called for transfer without delay were moved by similar means, but it is only in Iraq that this method of conveyance has become a routine procedure. The employment of aircraft for this purpose is of great value in cases where the seriousness of the injury or disease demands evacuation with the least possible delay or where the nature of the country is such that no other form of transport is practicable.

New barrack-blocks were built at Aden, Heliopolis and Aboukir.

Further, the Report says:—

It has been decided not to issue tinned salmon to aircraft apprentices in future.

Apparently aircraft apprentices tend to indulge too freely in tinned salmon and the result has been three outbreaks of

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BAND OF THE ROYAL AIR FORCE.

KINDLY MENTION “THE AEROPLANE” WHEN CORRESPONDING WITH ADVERTISERS.

poisoning at Halton in three years. Therefore the iron hand of discipline has removed tinned salmon from the Halton menu. The Report omits to state what will be used to replace it in the manufacture of that monotonous breakfast-ration—the fish-cake.—C. M. MCA.

The Women's Royal Air Force.

The Fourth Annual Dinner of the W.R.A.F. Old Comrades' Association took place at the Victoria Mansions Restaurant on Apr. 30. Dame Helen Gwynne-Vaughan, Commandant of the W.R.A.F. and President of the Association, was in the Chair.

Proposing the health of the Guests, Dr. Letitia Fairfield (W.R.A.F. Medical Service) said that the guests were all old friends whose work was valued by the W.R.A.F. Sir John Salmond would have a toast to himself. Air Commodore Newall was Deputy-Director of Personnel in 1919 during the clearing-up period and had always made the W.R.A.F. feel that they were part of the Service. She also paid a tribute to each of the other guests, representatives of the Q.M.A.A.C., W.R.N.S., and the United Services' Fund.

Air Commodore Newall said he had been unfortunate enough to be at the Air Ministry when the W.R.A.F. were disbanded. It was not his fault, but a case of the Income Tax being no longer able to bear the strain. He thanked his hosts on behalf of all the Guests for a delightful evening and they hoped they would be invited again.

Proposing the Air, Dame Helen said it was a delightful thing to be a twin, but it was a great pity when one twin died young. It was a great honour to have served with anything so fine as the R.A.F. She coupled with the Air the name of Sir John Salmond, who had been the best Air Officer under whom the women had served. He always regarded them as part of the Service and as people to be taken seriously.

Air Marshal Sir John Salmond said that when he realised the enthusiasm of the W.R.A.F.O.C.A. he felt proud to be their Guest. To reply for the R.A.F. without its women was to reply for a Service without its wife, its sister and its sweetheart. The W.R.A.F. had gracefully and without any grating noise assimilated the life of the R.A.F. They had carried on the tradition which had always prompted women to relieve men of any duty which could be undertaken by a lighter hand. They had helped to sustain the moral of the men at the Front.

The W.R.A.F. was the first woman's organisation to reach enemy territory. He had vivid recollections of them in Cologne and the impressions they had made on the Germans. It was nine years now since the R.A.F. had had to do without the W.R.A.F.

Sir John went on to tell the assembled company what the R.A.F. had been doing since they left it, its reduction in 1920 and its gradual increase up to the present day. The work of the R.A.F. was necessarily preparing for the next war and they were glad to know that the women were behind them.

He congratulated Dame Helen on the success of the reunion. He understood that a large number had come from long distances and it was a fine example of the spirit of comradeship which had existed during the War and would live for all time. Sir John's speech was well received with loud and prolonged cheers.

Miss Bragg replied for the Old Comrades' Association.

Miss Foster, proposing The President, said that men had started the War, but after a few years had found that they could make no further progress with it, with the result that the three women's Services had been found. The Q.M.A.A.C. and W.R.N.S. were more or less experiments and all the uncontrollable spirits had rushed to join with the result that all the intelligent and deep thinking women had been reserved for that Celestial body, the W.R.A.F.

Dame Helen's health was drunk with (more or less) musical honours. A Royal Air Force dance-band added enormously to the success of the rest of the evening.—C. M. MCA.

The Royal Academy Banquet.

Replying for the R.A.F. to the toast of the Imperial Forces of the Crown at the Royal Academy Banquet on April 30, Sir Samuel Hoare, Secretary of State for Air, said that as far as the number of Squadrons went the R.A.F. was twice as strong as it was five years ago. It was satisfactory to notice the substantial progress that had been made to strengthen a weak and critical spot in our line of defence. During the past few months he had seen the work of the squadrons on the N.W. Frontier of India. There the R.A.F. was playing a most important part in frontier defence.

The ordinary citizen was taking an increasing interest in flying and in its value for Imperial purposes. He attributed this to the Light Aeroplane Club movement which he considered was exercising a real influence.

While he was in India he had done his best to stimulate interest in aviation. He had taken scores of people for flights in a machine which punctually covered 10,000 miles without the need of a single repair or spare part.

The R.A.F. Memorial Fund.

A meeting of the Executive Committee of the R.A.F. Memorial Fund was held at the offices on Apr. 27.

The usual list of donations and subscriptions which had been received since the last Meeting of the Committee, together with a list of grants made by the Grants Sub-Committee and the Secretary since the same date, were submitted.

The Committee were informed that the School for the orphan sons of airmen, maintained by the Fund at Vanbrugh Castle, Blackheath, S.E., had closed for the Easter vacation on Apr. 5, and had re-assembled on Apr. 26 with a full complement of thirty-eight boys.

The Committee were informed that the Annual Report for 1926 had been distributed among the Vice-Presidents, members of Committees, and all subscribers, and to all Units of the R.A.F., and to the Press, to the extent of fifteen hundred copies.

Through the kindness of an Officer of the R.A.F. the Committee had been enabled to offer for sale amongst the R.A.F., and to others interested, copies of a new book of *R.A.F. Songs and Verses*, applications for which, at 2s. a copy, post free, will be received at the offices of the Fund by the Secretary.

The Committee had under consideration the publication of some Posters for distribution amongst the Units of the R.A.F. throughout the Empire setting forth the objects and activities of the Fund and appealing for subscriptions and it is hoped this will be ready for issue to the Air Force in about a month's time.

LORD COWDRAY.

The Viscount Cowdray, before his elevation to the Peerage Sir Weetman Dickinson Pearson, head of the firm of S. Pearson and Co. Ltd., Works Contractors, died suddenly in his seventy-first year on the morning of May 1 at Dunect House, Aberdeenshire, whither he had gone last week to receive the Freedom of Aberdeen on May 3.

Lord Cowdray, who, besides being one of the greatest of Works Contractors, was one of the leading people in the Mexican oil business, was appointed, in January 1917, President of the Air Board, which was the predecessor of the Air Ministry as it at present exists.

In November, 1917, when the question of elevating the Air Board to the status of a Ministry was being discussed, everybody naturally assumed that Lord Cowdray would be our first Air Minister. The work which he had done at the Air Board, ably assisted by Sir William Weir, now Lord Weir of Eastwood, who was in charge of the particular portion of the Ministry of Munitions which was concerned with aircraft supplies—proved that his great ability as an organiser and producer was of the highest value to the British Nation and to the progress of aviation.

Despite this proven ability Mr. Lloyd George, who was then Prime Minister, offered the post of first Air Minister to Lord Northcliffe, who published on Nov. 16, 1917, in most of the London papers, a letter refusing the post in plain language which laid bare uncompromisingly the incompetence of Mr. Lloyd George and his unsuitability for his high office.

This letter of Lord Northcliffe's was Lord Cowdray's first intimation that the Prime Minister desired any change in the control of aeronautical affairs. Mr. Lloyd George had not indicated in any way that there was any dissatisfaction about Lord Cowdray's work—and there was in fact no reason for any dissatisfaction. Consequently Lord Cowdray's immediate reply to this unforgivable insult was a dignified letter published in the daily papers on Nov. 17, resigning his position as President of the Air Board.

With that he passed out of British Aviation.

To Lord Cowdray chiefly we owe the co-ordination of the Royal Flying Corps and the Royal Naval Air Service into the Royal Air Force, and the general organisation under which the British Nation came into possession of an Air Service with full powers as soon as the Air Force Bill, which was being discussed by the House of Commons when Lord Cowdray resigned, became operative.

The work done under Lord Cowdray's guidance during the year 1917, in which he held office, may best be measured by the final phrase of his letter of resignation in which he said:—

As for the material results of the year, the devoted work of my colleagues and staff of the Air Board, together with the loyal co-operation of the Department concerned, have enabled the effective Air Forces of the Army to be increased threefold.

After the Armistice, when everything aeronautical was in as bad a state as was the rest of the Nation, Lord Cowdray generously endowed the Royal Air Force Club so that those who had fought and worked together during the War might keep in touch for their common good. The Club was first formed in Bruton Street. And, if one's memory serves aright, Lord Cowdray then gave the sum of £100,000 to put the Club on a sound footing so that the entrance fees and subscriptions and prices could be kept at a level within the reach of the former officers of the Air Force as well as those on full pay.

The Bruton Street premises were never intended to be other than temporary, and a year or two later Lord Cowdray acquired the premises in Piccadilly which the R.A.F. Club now occupies. These premises were remodelled, decorated and furnished on a scale which has made the R.A.F. Club quite the most comfortable, and perhaps even the most luxurious, Service Club in the World.

One has no actual official information on the subject, but, among those who are in a position to know it is said that altogether between the Bruton Street and the Piccadilly premises Lord Cowdray spent something over £400,000 on the R.A.F. Club, purely as an indication of the high esteem in which he held the work of the Royal Air Force as a whole and the gallantry of individuals of the Flying Services.

The R.A.F. Club stands to-day as a tangible memorial to Lord Cowdray's generosity, but a far greater memorial exists in the status of the Royal Air Force, of which he laid the foundations, as our First Line of Defence, and in the fitness of the Royal Air Force to hold that proud position.—C. G. G.

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THE A.I.D. DINNER.

The Technical Staff Association of the Aeronautical Inspection Directorate of the Air Ministry held its Second Annual Dinner at the Imperial Hotel on Apr. 29. Mr. J. J. A. Gilmore, B.A., A.R.C.Sc., at present chief of the A.I.D. at Vickers Ltd., Brooklands, the Chairman of the Association, was in the Chair.

After a very good dinner and the usual loyal toast Air Vice-Marshal Sir John Higgins, K.B.E., C.B., D.S.O., A.F.C., Air Member for Supply and Research, proposed the toast of the A.I.D. He said that when the Chairman announced the first item in the evening's amusement he feared that he was alluding to his speech, and he assured them that speechmaking was not an amusement.

He himself felt that the A.I.D. was one of the chief mainstays of the Air Force, and he was quite sure the Air Force thought so too. The pilots had absolute confidence in the work of the A.I.D. and that was the only testimonial the A.I.D. needed.

As to the difference between the A.I.D. in general and the Technical Staff Association in particular, he said it was rather a question as to whether it was the alligators or the crocodiles who were having dinner.

He reminded them that the A.I.D. was started by the late Colonel Fulton, R.F.A., before the War, in a row of huts at Farnborough. He admired that first organisation immensely. It actually had a card index system, and he thought at the time that it was the most efficient thing that ever happened. He went and asked for a card about Farman aeroplanes and got it at once.

Sir John reminded his audience that during the War there were 18,000 people in the A.I.D., 11,000 men and 7,000 girls. Now the total was down to 300. But, speaking as the titular head of the A.I.D., he said "Our Service is on a firm basis."

The number of people at the Dinner, he remarked, was a tribute to the spirit of the Directorate. They had had the Annual Conference of the A.I.D. that morning and he thought it was a good idea to have the Dinner afterwards so that the membership could become better acquainted. Also it was a good thing to give people from the outlying stations, say, in the wilds of the Shetlands, a chance of seeing civilisation occasionally.

He ended by remarking that the work of the A.I.D. filled him with respect.

LIEUT.-COL. H. W. S. OUTRAM, C.B.E. (Deputy-Director of Aeronautical Inspection), replying, said that the Air Vice-Marshal had said many nice things at the Conference that morning. He himself (Col. Outram) had done a lot of talking at the Conference, and he was sure that those who were there did not want to hear him talk any more, but he wanted to say that such success as had been achieved had been achieved by team work.

Their whole principle was that no one man in the World could inspect a whole aircraft. It could only be done by organisation and by co-operation between specialists. If other people tried to inspect civil aircraft (one imagines that he alluded to handing over civil aircraft to the insurance companies) they would find great difficulty as they could not have a similar collection of specialists.

He said that it was a good thing that the members should get to know one another as individuals, and he suggested the possibility of some social function other than a dinner two or three times a year. To-night's dinner showed that the members of the A.I.D. could organise such things.

He reminded his hearers that the technique of aircraft engineering was advancing rapidly and that there were continually new problems arising from the inspection point of view so that individually they must keep up to date. He remarked that it was a great honour to such a relatively small Deputy Directorate to have so many high officials of the Air Ministry present. He felt that the A.I.D. was not worthy of the Air Vice-Marshal's eulogies, but would try to deserve them.

MAJOR G. P. BULMAN, O.B.E. (Chief Inspector, Engines), proposing the Guests, said that he hoped that in his speech the tongue of enthusiasm might be fitted to the tooth of discretion. The Dinner was honoured by the presence of Sir John Higgins, the Air Member for Supply and Research, and Sir Walter Nicholson, the Secretary of the Air Ministry, the twin stars round whom the A.I.D. managed to revolve. Those members from the backwoods of Coventry or outer darkness of Sheffield only knew these personages by sight or recognised their signatures on official documents, so perhaps he might be permitted to say something about them.

Sir Walter had come to the Air Ministry from the Admiralty. A reference in the memoirs of Admiral "Jacky" Fisher referred to an able young Civil Servant at the Admiralty named Nicholson, who, he said, was capable of mobilising the Fleet as quickly as he could himself. Sir Walter's knowledge of the Admiralty mind was undoubtedly of great value to the Air Council.

Sir John Higgins had learned to fly before the A.I.D. existed, so he must have borne a charmed life. The A.I.D. owed to its first great chief, Colonel Fulton, the idea of living for the Service. After commanding the King's Service in Iran, where occasionally it was necessary to bomb offending people, Sir John might find it difficult to desist from such practices, and he hoped that no bombs would fall on the A.I.D.

He remarked that among the many other distinguished guests were Mr. McNally, one of the principal Assistant Secretaries at the Air Ministry, and Major Buchanan, Assistant Director of Research (Aircraft), whom he had got to know better recently through spending a week in Paris with him during the Aero Show.

Referring to THE AEROPLANE newspaper, he said that the Editor believed in the doctrine that some fleas were good for a dog, as they prevented him from brooding on the fact that he was a dog. He did not suggest that THE AEROPLANE represented the fleas but rather that THE AEROPLANE regarded the A.I.D. as parasites necessary to the good of the Air Force.

SIR WALTER NICHOLSON, the Secretary of the Air Ministry, said that in replying for the Guests he regarded them as a congerie of individuals whose only common bond was that they had eaten an excellent dinner to which they were not entitled. In his position as Secretary of the Air Ministry he was an official who was put up to say things that other officials wanted said.

When he first came to the Air Ministry he was surprised to find a whole department solely concerned with inspection. [Doesn't the Admiralty have an Inspection Department? If not that explains a good deal.—C. G. G.] Later he found that the A.I.D. was ready to inspect anything except perhaps foodstuffs.

He felt sure that when the members journeyed on to the next World they would still find plenty to inspect. At any rate they would find wings. But he had to remind them that the tail units would be found in another place. Perhaps those who were first concerned with the tail units could arrange to be repeated every four years.

Becoming serious, he said that on the A.I.D. rested the repute of British flying as well as the lives of our airmen. The men who carried such responsibilities deserved well of the State. He said it was a good thing to have a well-knit organisation of the staff to speak for it with moderation.

MR. B. M. ROBINSON, formerly Vice-Chairman of the Whitley Council in the Air Ministry, said that the Technical Staff Association was one of the strongest associations in the Ministry.

MR. MAXWELL MULLER, Works Manager of Vickers Ltd., Weybridge, said that team work was not only necessary in the A.I.D. but between the A.I.D. and the Contractors. Having himself suffered the despotism of an Outram and the admonitions of a Bishop he had learned after years to do as he was told.

He recalled the fact that in the early days of flying the Trade had no use for the A.I.D. and regarded its members as apostles of perfection, as well as regarding the A.I.D. stamp as costing more than its weight in gold. But to-day the Trade regarded the A.I.D. stamp as the hallmark of perfection and the best possible selling point to foreign nations.

What had been considered impossible was now, thanks to the A.I.D., our standard of perfection, and anything less was mud.

MR. H. W. W. MCANALLY, C.B. (one of the Principal Assistant Secretaries to the Air Ministry), proposing the Technical Staff Association, referring to the A.I.D. and T.S.A., said that a rose by any other name would smell as sweet, and that they were identical in spirit. The Department had grown considerably during the past year, but he could assure them that its growth was not due to culpable negligence on his part nor that of his advisers.

This gathering of the A.I.D. seemed to him a Pageant of energetic vigorous life. And he congratulated Mr. Gilmore, their Chairman, who was academically a son of both Dublin and Belfast, on being the only living Irishman who had succeeded in combining North and South.

MR. J. J. A. GILMORE, B.A., A.R.C.Sc., in reply, said that the Administrative Branch of the Civil Service needed a knowledge of the dead languages, but that the Technical Side found that facility in very live languages was quite necessary. He remarked that the Air Ministry was singularly fortunate in the small number of differences of opinion between the Administrative and Technical sides.

Recently the Administrative side had suggested certain small increases in certain grades of the A.I.D. Those with a knowledge of the dead languages remarked "*Timeo Danaos et dona ferentes!*" Those with a knowledge of modern languages translated it as "Look out they are offering something without asking. There's a catch in it!" Anyhow, they were ready to take in the wooden horse, or, perhaps, as wood was going out of fashion, he should say that they were ready to take in the all-metal horse.

Still, he would like to say that personal gain was only one aim of the T.S.A. They also wished to give good service and to behave in the same way as Administrative Civil Servants always did.

In their dealings, the T.S.A. had been much helped by the Institution of Professional Civil Servants. There was once a fear that the Technical side might be led away by Bolshevism but that in these days at worst their colour was only a pale puce.

He thanked the various officers of the T.S.A. for the help they had given in the organisation of the Dinner, and he particularly wished to thank, as non-members of the Association, Mr. Newbold and Mr. Jack Jarvis, who had been responsible for organising the entertainment and had been co-opted to the Organisation Committee.

In between the speeches there was an unusually good entertainment organised by Mr. Jarvis, who deserves to be congratulated on his choice of artists.

That being that, one may now proceed to thank the A.I.D. and the T.S.A. for a most enjoyable evening, and to congratulate them on the good spirit which drew so many to that gathering.

One was told by an official of the Air Ministry that there were over 160 present. Which moved one to remark that this was apparently an indication of the quantity of officials which John Citizen has to support. But one was told that a high percentage of the number were guests, an explanation which suggested the further remark that that seemed to prove how well the tax-payer pays the officials which oppress him. This ill-timed pleasantry promptly drew from another Air Ministry official the remark "Join the A.I.D. and see!"

—He did not complete the slogan of the R.A.F. poster. However, all those present seemed very well fed and well clothed and extraordinarily happy so one imagines that the T.S.A. and the A.I.P.C.S., in conjunction with the less stony-hearted officials of the Treasury and the benevolence of Mr.

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AIR TOWAGE.—The Raab and Katzenstein experiments in towing a glider.

McAnally see to it that the A.I.D. does at any rate get a living wage.

One felt greatly honoured that one should have been asked to this gathering, for there was a time when one regarded the A.I.D. not merely as parasites but as dangerous vermin. In its earliest days when the Department was founded by Colonel Fulton, one of the earliest of one's friends in Service Aviation and one of the finest characters within one's knowledge, one was wholly enthusiastic for the A.I.D. Then came a time during the War when the A.I.D. became infected with the spirit of the Royal Aircraft Factory of those days and when every official, with of course certain notable exceptions, became not only a parasite but a petty tyrant, and (one can now say it safely) there were among those 18,000 people in the A.I.D. a proportion who were crooks and grafters.

Consequently in those days THE AEROPLANE was not popular with the A.I.D. So in attending this dinner one felt not so much like a Daniel in a den of lions, as like a worm in a bowl of gold-fish.

Since the War, under the cleansing fire of demobilisation and the very able direction of Col. Outram, the A.I.D. has become a small and carefully-selected body of keen and intelligent Inspectors among whom one has always found not only

an extraordinarily high level of intelligence but a keenness and loyalty such as would be difficult to find in any other body of men in this or any other country. So far from being case-hardened Civil Servants living by rule and working according to paper regulations, every man seems to be capable of taking responsibility and of using authority in a way which is wholly admirable.

The A.I.D. Inspector or lesser official of to-day is almost invariably one of the most popular people in the factory to which he has been appointed. He gets along equally well with the directors and with the individual workmen. One hardly ever hears a complaint in the Aircraft Trade about anybody in the A.I.D.

Perhaps once in a while a newly-appointed member, unduly impressed by his own importance on becoming a Government official, may be too rigid in his rulings or a trifle inclined to misuse his authority. But taking the Department all round its members work with a curious flexibility which is doing a vast amount of good to the whole Aircraft Industry. They keep a nice balance between maintaining quality and accelerating output which shows that they are wholly worthy to be, as Sir John Higgins said, one of the chief mainstays of the Royal Air Force.—C. G. G.

SERVICE IN THE DESERT.

On June 28, 1926, at 13.00 hours, during the Moroccan operations, a Farman Goliath (two 450 h.p. Jupiter engines) belonging to the French Navy, was forced to alight 10 kms. N.E. of Kasbah-Tadla, 200 kms. from Fez, with engine trouble. Although only 200 kms. from Fez by air, the land route, with a detour by way of Casablanca, was over 500 kms., which under the best conditions represented five days' travel.

The machine announced its forced landing by wireless, and an officer on a Breguet flew over and located its position. By 18.00 hours all preparations had been made for salving the Goliath.

At 11.00 hours on June 29, a Goliath, carrying a spare engine under the fuselage on the torpedo-dropping gear, numerous other necessary spares, rations, a crew of six, and seven hours' fuel, left Fez and at 13.00 hours reached the disabled machine.

The disabled engine was removed, the new one hoisted into place on the machine, and the defective engine was mounted on the torpedo gear of the rescuing machine, which arrived back at Fez at 20.00 hours. At 17.00 hours on June 30, that is 47 hours after the receipt of the message announcing the forced landing, the original machine, re-engined, arrived back at Fez.

Altogether a very sound piece of work, and a credit to the personnel of the French Naval squadrons operating under difficulties in Morocco.

ANOTHER TRANS-ATLANTIC ATTEMPT ACCIDENT.

On Apr. 26, Commander Noel Davis, U.S.N., and Lieut. Stanton Wooster, U.S.N., were killed at Messick, Va., when carrying out a full-load test on a Keystone (late Huff-Daland) Pathfinder biplane on which they were to attempt to fly the Atlantic.

Carrying a load of 13,000 lbs., the machine stalled on a turn soon after taking off and fell into four feet of water. Both the officers were drowned.

AIR TOWAGE.

The pictures here reproduced illustrate some trials, made on April 13, at the aerodrome at Kassel, in Hesse, with a glider towed behind an ordinary aeroplane. It will be remembered that several years ago Mr. Anthony Fokker exhibited at the Paris Aero Show an engineless machine which was intended to be towed behind an aeroplane, the general idea being that mails or goods for delivery at an intermediate landing ground could be carried on such a machine and slipped without interrupting the flight of the towing aircraft. No news of any experiment with Mr. Fokker's aerial slip-coach has been received.

The tests now mentioned were made with a small biplane glider of 15 sq. m. surface and a loaded weight of 200 kg., built by the Raab-Katzenstein Flugzeugwerke at Kassel.

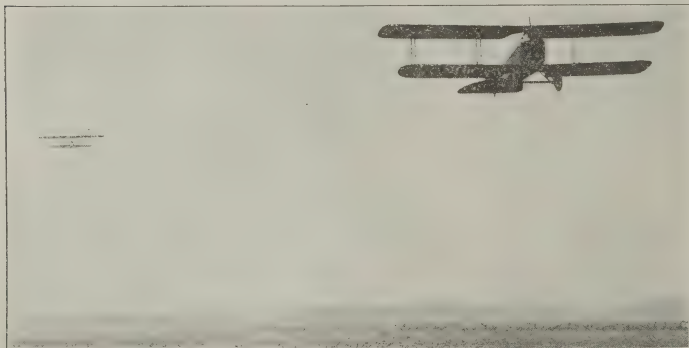
The glider was attached to the towing machine by a long cable fixed to the centre section of the towing machine and to the nose of the glider. Quick-release gears were fitted

on each end of this cable so that the pilot of either machine could free it as required, and a light tubular guard was fitted above the fuselage of the towing aeroplane to keep the cable clear of the rudder and fin.

It appears that at the first attempt to get off the glider left the ground and climbed rapidly before the towing machine attained flying speed. The glider pilot released himself and landed. A second attempt was more successful, and it is claimed that the process of towing an engineless machine behind a normal aeroplane presents no practical difficulty.

The pilots engaged in these tests were Herr Katzenstein on the power-driven machine and Herr Raab on the glider.

Herr Katzenstein towing Herr Raab.



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"The Aeroplane," July 7th, 1926.

"Flight" photograph

GLOSTER

A MILAN AERO EXHIBITION.

There has just been held the second annual Aero Exhibition in connection with the *Fiera di Milano*. The outstanding feature of this manifestation was the presence of the German Aircraft Industry. The German Exhibit, consisting of the products of sixteen firms, was arranged by the *Verband Deutscher Luftfahrzeug Industrieller* which is apparently a counterpart of our S.B.A.C. but it obviously differs from the latter body in that it believes in active co-operation, does not wrap itself in mystery, and is fully alive to the possibilities of foreign markets.

It can be argued that Italy has a very successful self-contained Aircraft Industry, that the Italian Government are very active partisans of the "Buy Italian Goods" campaign and that the Milan Show was a comparatively small affair, but then Germany thought it worth while to consider the inter-National market through this International Fair, as they have thought it worth while to open factories in Italy, Switzerland, Sweden and Turkey, to send machines to South America, the Near East, Siam, China, etc., and to step in generally where we have feared, or omitted, to tread.

The Italian Industry was represented by a number of interesting aeroplanes and engines.

The *Macchi* company showed the M.39 racing seaplane, the winner of the 1926 Schneider Trophy.

The *Savoia* company showed a model, one-tenth full size, of the *Santa Maria*, a number of other models, photographs, paintings and posters.

Signor Piero Magni showed his extremely attractive touring monoplane *Vittoria*.

The *Alfa-Romeo* company showed a Bristol Jupiter engine, for which it holds the constructional licence in Italy and an Alfa-Romeo Ro.1 two-seat reconnaissance biplane, which is in reality a Fokker C.5, naturally fitted with an Alfa-Romeo Jupiter engine.

The *Caproni* company showed a commercial version of the Ca.73 twin-engined bomber to accommodate ten passengers and fitted with two Isotta-Fraschini Asso engines.

The *Breda* company showed the B.4 two-seater school biplane seaplane fitted with the 140 h.p. Hispano-Suiza engine and the B.7 all-metal reconnaissance monoplane fitted with the 450 h.p. Lorraine-Dietrich engine.

The *Agosto* company showed an interesting glider fitted with a small auxiliary engine.

The *Isotta-Fraschini* company showed the well-known Asso 500 h.p. twelve-cylinder engine, a Semi-Asso 250 h.p. six-cylinder in line engine and a 600 h.p. geared Asso.

The *Fiat* company, for some unknown reason, was not represented.

Owing to the limitations of space, the German aircraft exhibitors were forced to show only large-scale models.

Albatros-Flugzeugwerke showed their twin-engined L.73 night-flying commercial biplane.

The *Arado-Handels-Gesellschaft* of Warnemünde showed the Ar.S.1 school biplane fitted with the Bristol Lucifer engine and the Ar.C.1 with the 300 h.p. B.M.W. engine.

The *Bahnbedarf A.G.* showed a new two-seat monoplane the Bag.D.2 fitted with the 55 h.p. Siemens engine.

The *Bayerische Flugzeugwerke A.G.* showed the Udet Flamingo fitted with the 90 h.p. Siemens engine.

The *Casper-Werke* showed the C.27 school biplane seaplane and the C.32 "dusting" biplane.

The *Dornier Metallbauten G.m.b.H.* showed models of all its metal aircraft, including the *Mercur* and the *Super-Wal*.

The *Focke-Wulf Flugzeugbau* showed the A.16-d fitted with a 120 h.p. Mercedes engine and the G.L.18-c school and touring monoplane fitted with two 100 h.p. Siemens engines.

The *Ernst Heinkel Flugzeugwerke* showed the H.E.5a monoplane, which, fitted with the 450 h.p. Napier engine, won the German seaplane competition last summer and the H.B.20 photographic biplane fitted with two 200 h.p. Wright Whirlwind engines.

The *Junkers Flugzeugwerke* showed models of the F.13 six-seater monoplane as used on the Rome-Venice-Vienna line and the G.23 three-engined 12-seater monoplane.

The *Messerschmitt Flugzeugbau* of Bamberg showed the little M.17 monoplane fitted with the Bristol Cherub engine which last year flew over the Alps from Germany to Rome.

The *Rohrbach Metallflugzeugbau* showed three models, the *Rodra* twin-engined monoplane, the *Robbe* twin-engined pusher monoplane and the *Roland* three-engined commercial land monoplane.

German engines were well represented. The 250/300 h.p. B.M.W. six-cylinder engine and the 550/600 h.p. B.M.W. 12-cylinder engine was shown by the *Bayerische Motoren Werke*. The *Siemens und Halske* company showed the 55 h.p. five-cylinder, the 75 h.p. seven-cylinder, and the 90 h.p. nine-cylinder air-cooled radial engines.

The *Luftfahrzeug Gesellschaft (L.F.G.)* showed a model of a Parseval airship embodying a new form of construction, with three engines and a passenger car. Accessories were represented by aircrews by *Hugo Heine*, the *Ludolph* com-

pass, and photographic equipment by *Steffen and Heymann*.

Finally, it was announced that a squadron of German aircraft would visit the exhibition and give demonstrations.

Commenting on the German representation, the *French Journal Aereale* says:—

It is useless to imitate the ostrich and hide one's beak under one's wing in order to see nothing. The German Industry shows its aircraft, exports them and sells them. She knows how to organise formidable commercial propaganda. Why? Because there exists a strong discipline, an understanding between all manufacturers, controlled by a central organisation which diminishes individual effort....

The French Industry was represented by a composite exhibit, embracing two stands, which consisted of models of *Farman*, *Blériot*, *Dewoitine*, *Breguet*, and *Gourdou-Lesgournou* aeroplanes, with photographs of many other types, and specimens of the 450-500 h.p. *Hispano-Suiza*, the 500 h.p. *Renault* and the 120 h.p. *Salmson* engines. This exhibit also included a number of maps, plans, photographs and graphs concerning French commercial aviation, such as have been exhibited at all previous exhibitions where France has been represented.

AIR AFFAIRS IN PARLIAMENT.

EUROPEAN WAYLEAVES FOR AIRSHIPS.

In the House of Commons on Apr. 28, in reply to a question by LT.-CDR. KENWORTHY, the SECRETARY OF STATE FOR AIR said that there was no difference between the flying rights in Europe of British airships as opposed to aeroplanes. We certainly had the right to fly straight across Europe to Egypt and he hoped that the range of these airships would be sufficient to enable them to fly over Europe without having to tie up to a mast or go into a hangar. He was satisfied that no obstruction would be placed in the way of these ships' flying.

BRITISH AIRCRAFT OVER PERSIA.

In the House of Commons on Apr. 28, in reply to a question by LT.-CDR. KENWORTHY, the UNDER-SECRETARY OF STATE FOR FOREIGN AFFAIRS said that a difficulty had arisen with the Persian Government regarding the rights of British aircraft to fly over Persian territory of the Cairo-to-Karachi air route. The difficulty was due to a recent and sudden reversal of policy by the Persian Government, who had decided not to allow an international airway along the southern coast of Persia.

A written agreement which, had it entered into force would have secured the opening of this route to international traffic, had in fact been signed by the Persian Minister for Foreign Affairs and His Majesty's Minister at Teheran on behalf of Imperial Airways Ltd. in September to October, 1925. Further negotiations with the Persian Government on the subject were now in progress. He did not believe that the difficulty had arisen owing to our forbidding Persian aeroplanes or aeroplanes belonging to a Persian company to fly to Baghdad.

THE R.A.F. STRENGTH IN CHINA.

In the House of Commons on Apr. 28, in reply to a question by COL. DAY, the SECRETARY OF STATE FOR AIR said that the strength of the air units in or on their way to China was the equivalent of five squadrons of aeroplanes with a personnel of 700 of all ranks.

THE PACIFIC FLIGHT.

In the House of Commons on Apr. 27, in reply to a question by COL. DAY, the UNDER-SECRETARY OF STATE FOR AIR said that no material or equipment belonging to the R.A.F. would be used in the Pacific flight from Vancouver to Australia. The two British pilots making the flight were not officers of the R.A.F. He had no information about the flight, which he presumed was being privately organised.

THE CAIRO-CAPE FLIGHT.

In the House of Commons on April 27, in reply to a question by COL. DAY, the SECRETARY OF STATE FOR AIR said that the extra cost involved in this flight had been estimated at £3,500 as a maximum.

A BOOK OF SERVICE SONGS.

"Air Force Songs and Verses." (Aeronautics Ltd. 39 pages 2s. net, from the R.A.F. Memorial Fund, 7, Idesleigh House, Caxton Street, S.W.1.)

"Air Force Songs and Verses" does not include all the songs sung by the Flying Services in the course of the War 1914-18. There are some things which even Aeronautics Ltd. would hesitate to ask their printers (a sensitive race) to print and the present generation (equally sensitive) to read, so "Air Force Songs and Verses," may be bought for two shillings and taken into anybody's home.

Most of the songs were set to tunes which were popular when the present generation of Air Commodores were "Huns," when existing Squadron Leaders were grubby little schoolboys hoping that the war would last till they were 18, and when what are now the junior ranks of the R.A.F. were consuming Glaxo out of bottles. It was a rather brutal thing to do to collect these rhymes in cold blood and inflict them on a sadder and a wiser world, but the thing is done now, so we had better make the best of it, and, feeling that "it was a famous victory," like the gentleman in "Hohenlinden" who ploughed up the skulls, write to Caxton Street and have two bobs' worth for the R.A.F. Memorial Fund.

At any rate the war-worn will get a kick out of the past and the war-babies a grin out of the poetic efforts of those who have since attained to the Olympus of field rank.

The entire profits from the sale of this book will go to the R.A.F. Memorial Fund as the initial expenses of publication have been provided by a private individual.

The book includes *Cinquante-Quatre*, the Songs of 54 Squadron.—C. M. MCA.

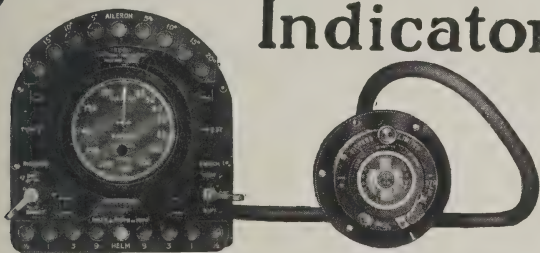
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THE FLYING CLUBS. The Association of Flying Clubs.

At the invitation of the Royal Aero Club a Meeting of Aero Clubs was held in London on Wednesday, Apr. 27, to discuss the associating of active flying clubs with the Royal Aero Club. The following Clubs were represented:—The Royal Aero Club, The Hampshire Aeroplane Club, the Lancashire Aero Club, The London Aeroplane Club, The Midland Aero Club, The Norwich Aero Club, and The Suffolk Aero Club.

The Scheme of Association with the Royal Aero Club was approved. This Scheme provides for the formation of a General Council on which all Clubs will be represented.

The Newcastle and Yorkshire Aero Clubs, although unable at the last moment to attend, expressed their agreement with the Scheme.

The Inter-Club Race for the Air League Challenge Cup was considered and it was decided to hold the race on July 9 at Castle Bromwich, Birmingham.

The race will consist of one circuit of a course—Castle Bromwich, Sherburn, Woodford, Castle Bromwich. The race will be on handicap and compulsory stops of 30 mins. will be made at Sherburn and Woodford.

The details were left to a Committee to be formed of a representative from each Associated Club. For this year, the race starting and finishing at Castle Bromwich, Birmingham, the organisation will be undertaken by Major Gilbert Dennison, Secretary of the Midland Aero Club.

[The association of the clubs-which-fly with the Royal Aero Club may be quite a good thing, for it will give those clubs a claim to take a hand in the management of the sport of flying, which has been so badly mis-managed by the R.Ae.C. Also, such contact with men who fly may help to make the Committee of the R.Ae.C. air-minded.]

As regards the Inter-Club Race,—That is an excellent idea. At first sight it may seem strange that the race should be run by the Midland Club, which has done a deal less flying and has in general shown a deal less energy than any other club in the list. In fact some people have been wondering why the Air Ministry continues the subsidy to the Midland Club and does not transfer it to some more active organisation. But Birmingham is quicker to reach from London and the South than is either Woodford or Sherburn, and it is handier for Aero Club Officials. Also, by bringing the race to Birmingham perhaps the local people may be made more air-minded and so may join the local club in larger numbers, and the existing members and officials may be stirred to greater activity.

Naturally the fact that the triangular course, which includes Birmingham, Leeds and Manchester, will, owing to the prevailing wind, take the Club pilots through the permanent smoke-clouds and perennial bad visibility of those three great industrial areas, and over very bad landing ground, is of no account to the Committee of the Royal Aero Club so long as the starting point is convenient to themselves. Castle Bromwich—Hamble—London would have been a far better course, free from smoke and over good flying country.—C. G. G.]

The London Aeroplane Club.

[Sec.: H. E. Perrin, 3, Clifford Street, W.]

Report for week ending May 1.

Total flying time 53 hrs. 15 mins.

Instructors.—Messrs. F. G. M. Sparks and S. I. F. St. Barbe.

Dual Instruction.—P. W. Hoare, G. Black, E. J. B. King, Dr. Cook, Lord Clydesdale, G. M. Randall, F. Clarkson, G. Neale, H. S. Greenland, Miss Fletcher, W. G. Riches, H. Solomon, I. H. McClure, E. L. D. Moore, P. O. A. Davison, A. J. Mulder, H. M. Samuelson, Miss Spooner, A. E. Leeding, Miss Wilson, C. R. Campkin, G. Weston, Mrs. Cook, G. C. Bonner, Lord Douglas-Hamilton, G. Merton, H. R. Fresland, J. J. Hofer, N. S. Hulbert, E. A. Lingard, E. T. Symmons.

Solo.—Major K. M. Beaumont, O. J. Tapper, E. T. Symmons, Miss O'Brien, G. H. Craig, A. G. D. Alderson, G. M. Randall, J. H. Saffery, A. R. Ogston, H. Solomon, R. P. Cooper, A. H. M. Lees, R. C. Fresland, L. J. C. Mitchell, K. V. Wright, G. Terrell, H. Spooner, D. H. P. Esler, A. F. Wallace, G. C. Bonner, M. L. Bramson, N. Jones,

E. L. D. Moore, Major H. Petre, A. C. Pearson, E. D. Moss, R. Malcolm, J. J. Hofer, G. Merton, N. J. Hulbert.

Passengers.—L. G. Skinner, Miss McClure, G. H. Weston, D. H. J. Symons, Miss McKenzie, Miss Tapper, A. G. Wallis.

The past week has been rather unfortunate for the Club owing to minor accidents. Two Club Moths had an argument outside the shop on Wednesday, one wanting to go in and the other to go out. Neither gave way and wings began to fly. The damage was fairly substantial. G-EBMF is still in hospital but G-EBKT after treatment resumed work after two days. There was a Pilot Instructor in the Club Moth!

On Sunday, May 1, the "Bristol" Brownie, with O. J. Tapper pilot, wrote off her undercarriage and received other minor damage in consequence.

The Lancashire Aero Club.

[Sec.: C. J. Wood, Windsor Bank, Chapel Street, Hyde, Cheshire. Report for week ending Apr. 30.]

Exceedingly cold winds chilled the enthusiasm and noses of members during the greater part of the week. Total flying time 26 hrs. 20 mins. made up of 11 hrs. 35 mins. dual, 9 hrs. 5 mins. solo, 3 hrs. 15 mins. joy-ride, and 1 hr. 25 mins. tests.

During the week Mr. Chapman, our ground engineer (engines) did an excellent first solo. One is not sure whether he is the first Club ground engineer to go solo or not, though one believes he is. In any case one admires his keenness and sporting spirit in learning to fly and offers him hearty congratulations.

An event of great importance is fixed for this coming Sunday, May 8, when Mr. T. N. Stack, our old instructor, member, and friend, will fly to Woodford to pay us a visit. The proceedings, which will be of a more or less informal and social nature, will begin at 2 p.m. and continue—well, until they stop.

Several of the other Clubs are sending machines and pilots over to join in the festivities and there is every prospect of a thoroughly enjoyable "Flying Social," so to speak. In the evening Mr. and Mrs. Stack will be the guests of the Club at dinner at the Queen Hotel, Alderley Edge.

The Lancashire Aero Club owes a great deal to T. Neville Stauden, not only for the reflected glory which he has brought upon it by his fine flight to India in a Moth, but also for his sterling work as chief instructor and aerodrome manager during a rather critical period of the Club's history. Sunday, the 8th, will be a memorable occasion.

The Newcastle-upon-Tyne Aero Club.

[Sec.: A. H. Bell, Crumlington Aerodrome, Northumberland.]

Report for week ending May 1.

Total flying time 33 hrs. 5 mins.—on LX 14 hrs. 15 mins., QV 15 hrs. 50 mins. Dual with Mr. Parkinson, 15 hrs. 10 mins. Solo (Training), 4 hrs. 35 mins. "A" Pilots, 10 hrs. 45 mins. Joy-rides (with Mr. Parkinson), 2 hrs. 35 mins.

The following members had instruction:—Miss Leathart (advanced), Mrs. Heslop, Messrs. Thirlwell, Miesegages, Wardill, George Hayton, Rasmussen, Welch, Shaw, Turnbull, Bainbridge, Milburn, L. Middleton.

Solo (Training):—Messrs. Bainbridge, Turnbull, Stawart.

"A" Pilots:—Mr. R. N. Thompson with Mr. Parmeter, Mr. Scarlett and Mr. A. Bell. Mr. H. H. Leech with Mr. Thirlwell. Mr. Phillips. Mr. H. Ellis with Mr. W. B. Ellis, Mr. Nicholson, and Mr. Forster. Mr. Mathews with Dr. Mathews and Mr. Percy. Mr. Thompson with Mrs. Heslop, Mr. White, Mr. Luckman, Miss Waugh, and Mr. Todd. Mr. A. Bell with Mrs. Bell and Mr. J. Bell.

Joy-rides:—Miss Hayton, Mr. M. Hayton, Mr. Moberly, Miss Lewin, Mrs. W. B. Ellis, Mrs. Parry, Mr. Broadbent.

Mr. Stawart completed the tests for his Licence on Thursday, an excellent style.

Preparations for the Flying Meeting to be held on June 11 are now in hand and, given reasonably good weather, it promises to be even more successful than that held last year.

Further Meetings are being arranged as follows:—July 9, Members' Meeting; Aug. 1, Members' Meeting; Sept. 10, Open Meeting.

The Yorkshire Aeroplane Club.

[Sec.: J. F. Barnes, 39, Swan Arcade, Bradford.]

Report for week ending Apr. 30.

Total flying time 33 hrs. 10 mins., as follows:—

Dual instruction with Mr. Beck, 6 hrs. 15 mins. Solo, 4 hrs. 20 mins. Joy-rides, 11 hrs. 20 mins. Cross-country, 9 hrs. 5 mins. Exhibition flights, 1 hr. 30 mins. Tests, 10 mins. There were approximately 124 flights.

Members under instruction:—Messrs. Batcock, R. K. Leach, Miller, Weaver, Wilson, Swift, Thomson and Miss Watson. Soloists:—Messrs. Carter, Clapham, Fielden, M. B. LaMann, Norway, Wilson and Wood.

The following were given joy-rides:—Messrs. Bamford and son, Call, Crabtree, Cross, Jamieson, Kidger, Rendall, Shaw, Mrs. Gal and the Misses Hay and Parsons. In addition a number of members of the Huddersfield Rotary Club.

A LIGHTISH AEROPLANE IN KENYA.—Sir Sefton Brancker (without hat), Lady Carbery (with cap) and Miss Auriol Lee (with hat) with Lord Carbery's D.H.51 (Airdisco engine). Lord Carbery's mechanic, Teufel, holding the airscrew.



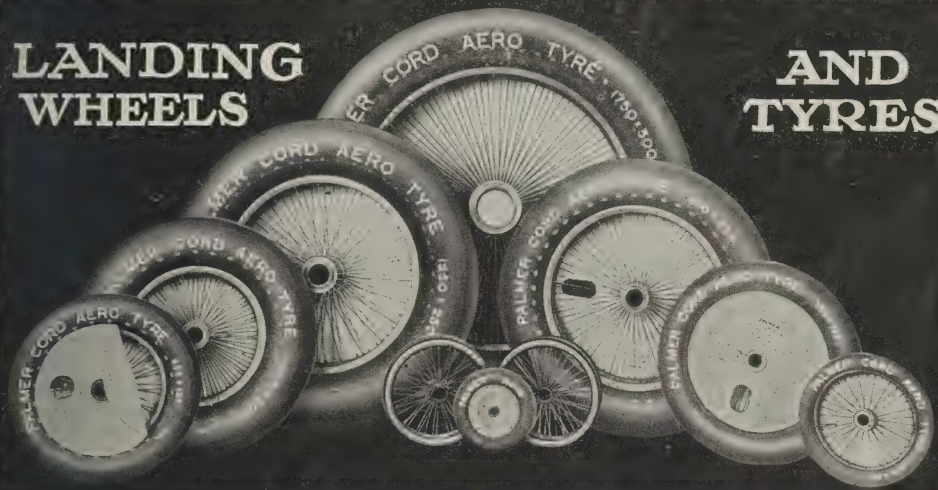


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375 x 55	168	111.12	25.4	Central	700 x 100	112	150.	38.09	Central	1000 x 150	210	185.	60.32	Central
300 x 60	16	111.12	25.4	Central	"	176	178.	44.45	Central	1000 x 180	148	220.	80.	Central
450 x 60	30	89.	31.75	Central	"	147	178.	55.	Central	"	149	185.	55.	Central
"	172	130.	38.09	Central	650 x 125	119	178.	55.	132 46	"	155	220.	66.67	Central
575 x 60	21	160.	28.	Central	"	188	120.	34.92	Central	"	166	185.	55.	125/60
"	180	150.	38.09	104/46	750 x 125	77	178.	44.45	132 46	900 x 220	107	185.	55.	Central
"	186	120.	34.92	Central	"	92	185.	55.	135 50	"	108	185.	55.	125/60
"	90	150.	38.09	Central	"	95	185.	55.	Central	"	128	220.	66.67	Central
650 x 65	78	178.	44.45	132 46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	79	178.	44.45	Central	"	112	150.	38.09	Central	"	157	185.	80.	Central
"	100	178.	38.09	132/46	"	176	178.	44.45	Central	"	202	185.	60.32	Central
"	101	178.	31.75	132 46	"	179	178.	55.	132/46	1100 x 220	134	220.	66.67	Central
600 x 75	21	160.	28.	Central	800 x 150	161*	185.	55.	135/50	"	136	250.	80.	Central
"	180	150.	38.09	104 46	"	162*	185.	55.	Central	975 x 225	192	185.	60.32	Central
"	186	120.	34.92	Central	"	163*	185.	66.67	135/50	"	194	185.	55.	125/60
"	190	150.	38.09	Central	"	169†	185.	55.	135/50	"	154	304.8	101.6	Central
700 x 75	78	178.	44.45	132 46	"	177	185.	55.	135/50	1250 x 250	135	250.	80.	Central
"	79	178.	44.45	Central	"	183	185.	55.	Central	"	154	304.8	101.6	Central
"	100	178.	38.09	132 46	"	211*	185.	60.32	135 50	1500 x 300	115	304.8	101.6	Central
"	101	178.	31.75	132/46	1000 x 150	167	185.	55.	125/60	"	126	304.8	152.4	Central
700 x 100	77	178.	44.45	132 46	"	174	250.	80.	Central	1750 x 300	139	400.	152.4	Central
"	92	185.	55.	135 50	"	182	185.	55.	Central	"	191	350.	150.3	Central
"	95	185.	55.	Central	"	187	220.	66.67	Central	1750 x 350	193	400.	125.	Central
"	99	178.	38.89	132 46	"	201	185.	60.32	125 60					

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

At the beginning of the week Mr. Beck flew LS from Sherburn with the intention of paying a visit on the Newcastle Club, but was forced to abandon the flight at Darlington with carburettor trouble. On landing he found that the air intake had become coated with a thick layer of ice, owing to a snow-storm which he met. The journey to Cramlington was continued by car, and he flew back from Darlington next day.

On Friday another cross-country flight was done, Mr. Beck flying with our Chairman as passenger to Cambridge, Northampton and Spittlegate, joy-rides being given at the first two places.

The week's programme was concluded with the visit of the Huddersfield Rotary Club on Saturday afternoon. About 60 members attended, and most of them took the opportunity of having joy-rides which had been reduced to 2s. on this occasion. Teas were afterwards served on the aerodrome.

The Blackburn firm very kindly sent over one of their Rotary Avros in charge of Mr. Stockbridge, who, with Capt. West's and Mr. Carter's assistance, helped us admirably with the rush of joy-riders, our two Moths and the Avro being in the air almost continuously from 3 till 7 o'clock.

We hope shortly to arrange a Landing Competition open to members of the Club, with prizes for those landing nearest to a fixed mark.—R. O. L.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth, Birmingham.]

Report for week ending Apr. 30.

Total flying time 12 hrs. 20 mins.

The following members had instruction from Mr. McDonough:—C. Burrows, E. P. Lane, F. Coxhill, J. C. Rowlands, H. Beamish, R. G. Cazalet, S. H. Smith, C. Fellowes.

Solo flights:—E. J. Brighton, J. Brinton, E. R. King, W. Swann, A. M. Glover, R. L. Jackson.

Passengers with Mr. Brighton:—H. Bolton, E. M. Alexander, S. H. Smith, R. D. Bednell.

Passenger with G. V. Perry:—R. Brinton.

On Saturday, Mr. Hubert Broad and Mr. F. N. St. Barbe arrived on the D.H. Moth EBNO for the Club's "At Home" Day, an account of which will appear in next week's report. [When it will be nearly a fortnight out of date. There seems no particular reason why it should not have appeared this week seeing that this paper receives news up till Tuesday morning for the express purpose of including week-end flying. THE AEROPLANE is not in the habit of publishing stale news.—G. G. G.]

The Hampshire Aeroplane Club.

[Sec.: Major R. Ross-White, Hamble, Southampton.]

Report for week ending Apr. 29.

The clerk of the weather has been unkind to us again this week so that the total flying time did not reach a higher figure than 6 hrs. 5 mins. Instruction flying, 5 hrs. Solo flying, 10 mins. Test flights, 55 mins.

Saturday, Apr. 23, 40 m.p.h. gale. Sunday, 30 m.p.h. gale. Monday rain.

The following members had instruction:—Messrs. Blake 1 hr. 10 mins., Sanders Clarke 40 mins., A. V. Roe 30 mins. (this rather savours of the analogy of grandmothers and eggs), Bowen 30 mins., Eburn 20 mins., Waite 20 mins., Jayne 20 mins., Shepherd 15 mins., Cox 15 mins., Cooper 10 mins., E. Wylie 10 mins., Capt. Yateman 10 mins., and the Hon. Grosvenor 10 mins.

The only soloist was Capt. Yateman.

We are hoping to receive a Moth from the De Havilland Co. on Saturday, Apr. 30, to replace our first write-off. This machine being fitted with a Mark II Cirrus which we have bought for a spare, and our old Mark I engine will be kept in reserve.

So many members have applied for the privilege of flying in the Pagant races that it has been decided to draw from the names of eligible members, and the results will be published next week.

The Bristol and Wessex Aeroplane Club.

[Sec.: C. S. Clarke, Channel Road, Walton Park, Clevedon, Somerset.]

Report for week ending Apr. 30.

Exceedingly bumpy weather in the vicinity of Yate Aerodrome, due to vertical gusts from one Bolas, prevented any flying.

Unfortunately, the Club's Pixie (the gift of Mr. George Parnall) will not be ready in time to relieve the Hampshire Club of their President's Cup and other souvenirs on the 13th, and attempts to subdue the gustiness referred to, by increasing Club-mindedness, has not had the desired result of obtaining the loan of our Pixie's twin for the Hampshire Show, although she is ready and straining at the leash.

On the financial side, it is pleasant to record that Major Egbert Cadbury, D.S.C., D.F.C., has generously promised £100 towards the cost of an aeroplane.

Our Acting Sec., who is to be the pilot instructor, is frantically searching for someone upon whom he can unload his secretarial responsibilities, in order to take five minutes' rest before flying begins. Roll up volunteers!

Congrats to Lancs. on their last week's effort. Perhaps they have heard of our impending advent into the arena, and want to be the first Club to beat London.

MR. LEITNER'S PROGRESS.

His many friends will be glad to hear that Mr. Henry Leitner, of Metal Propellers, Ltd., is making very satisfactory progress. He is in the Croydon General Hospital, and the doctors believe that in spite of his severe injuries he is now out of danger.

A HANDY ACCESSORY.

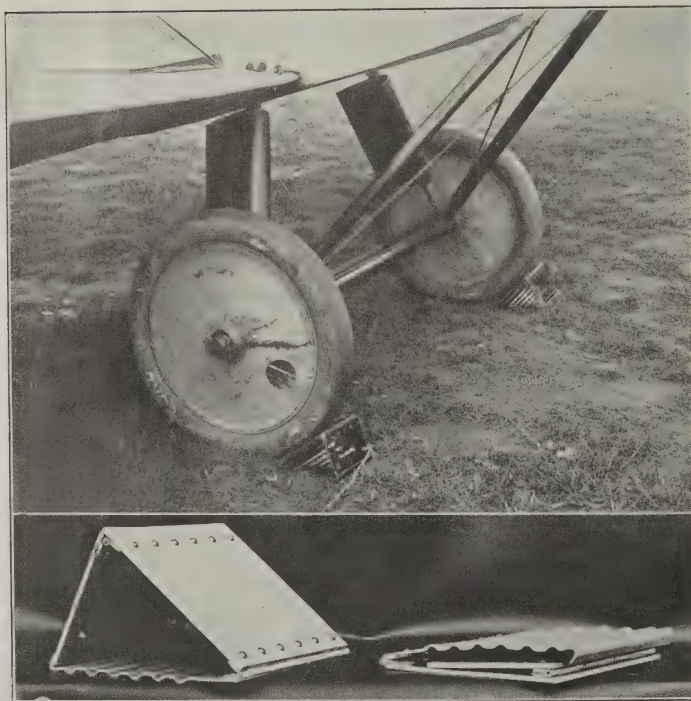
The photographs here reproduced show a new form of chock for the wheels of aircraft designed and patented by Mr. S. Hughes, the ground engineer at Hamble Aerodrome, to replace the usual clumsy lump of wood which is generally used for the purpose.

The Hughes' chock consists of three plates of stout duralumin hinged together, and arranged so that they may either be opened out to form a triangular block of the same section as the usually given to wooden chocks, or may be folded flat for transport.

As the photographs show, the face of the chock which, in use, lies on the ground, is ribbed to increase its grip on the earth.

In the folded form a pair of chocks of this type occupies very little space, and consequently can easily be stowed on an aeroplane—a feature particularly valuable for private aircraft which may land away from regular aerodromes, where alone ordinary chocks are likely to be found.

The Hughes' chocks are made in sizes suitable for light, medium weight and heavy aircraft. The light aeroplane size has a face 6 ins. wide and is ample strong to hold any machine likely to be used by the private owner.



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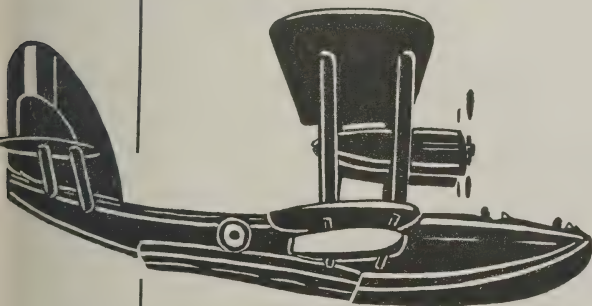
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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 13; Tuesday, 19; Wednesday, 16; Thursday, 17; Friday, 13; Saturday, 18; Sunday, 5

IMPERIAL AIRWAYS LTD.:

Paris—London; London—Brussels—Cologne: Machines 37, passengers 354, freight 14 tons.

AIR UNION:

Paris—London: Machines 32, passengers 76, freight 11 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 14, passengers 59, freight 2 tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 14, passengers 37.

PRIVATE:

Machines 4, passengers 2.

Total number of trips by British Machines, 41, carrying 356 passengers. Foreign Machines, 60, carrying 172 passengers.

Comparative Figures:

Week ending May 1:

Machines, 101; Passengers, 528; Crews, 170; Total personnel, 698.

Corresponding week, 1923:

Machines, 89; Passengers, 400; Crews, 112; Total personnel, 512.

Corresponding week, 1925:

Machines, 82; Passengers, 441; Crews, 120; Total personnel, 531.

Corresponding week, 1924:

Machines, 44; Passengers, 99; Crews, 75; Total personnel, 174.

Corresponding week, 1923:

Machines, 117; Passengers, 475; Crews, 191; Total personnel, 666.

Corresponding week, 1922:

Machines, 109; Passengers, 234; Crews, 156; Total personnel, 390.

Corresponding week, 1921:

Machines, 65; Passengers, 227; Crews, 79; Total personnel, 306.

Corresponding week, 1920:

Machines, 84; Passengers, 126; Crews, 96; Total personnel, 222.

Croydon Notes.

The opening date for the new aerodrome buildings is provisionally arranged for Oct. 1 next. The sheds themselves are now finished, with the exception of the offices at the back. The main block of offices is on the way to completion and the framework of the workshops is well under way. So far there is no sign whatever of the hotel, and if this is going to be ready for the opening day, Messrs. Barclay and Perkins will have to get a move on. So far they have been waiting for the full licence, but as this was granted a month ago, there is no reason why the building should not have begun already.

One hears a rumour to the effect that the best offices, i.e., those overlooking the aerodrome, have all been allotted to the Air Ministry and Customs staff and that the mere companies and others have been stowed away at the back.

Now it is only right that the C.A.T. officers and Customs officials and those engaged on traffic work should be overlooking the aerodrome, but there is no reason why the clerks' offices should be similarly placed. In fact there is every reason why Government clerks should not spend their time looking out of the window at the planes.

Imperial Airways have their own offices attached to their shed at the Air Union, K.L.M., Air Express, and others must have offices overlooking the aerodrome. Also the accredited press representatives, Mr. Brenard, who has established and appointed himself as such, sheer hard work and keen business acumen, should obviously have an office where he can see what is happening, and keep his ideas abreast up to date and more or less accurate.

One gathers that Imperial Airways are doing very good work. A weekly service is now being run between Cairo and Baghdad and the pilots greatly appreciate this, as only a few hours' flying once fortnight was a bit boring. Full loads are being carried on every trip and the route is popular already. The surface routes cannot be compared with the air route for comfort and speed in that part of the world.

The De Havilland Hercules and the Bristol Jupiter engines are the joys in the lives of the pilots, and one gathers that these machines are coveted by the R.A.F. pilots. So far, in spite of malicious rumours to the contrary, there has been no trouble whatever with the machines or engines, which remain unaffected by the climate.

The A.D.C. Aircraft Ltd. have been busy preparing and testing various machines. They have hired to Mr. Neville Stack a D.H.9 on which he will do taxi work. One gathers that he will co-operate closely and on a friendly basis with Imperial Airways Ltd. One is very glad to hear this, as one always considered that it was small-minded on the part of some few members of the traffic staff of Imperial Airways to object to competition by "pirate pilots." After all, it is to the good of British Aviation generally to have as many British aeroplanes in the air as possible and Imperial Airways are doing the right thing in working with and not against independent pilots.—G. D.

THE SILVER WING SERVICE.

On Friday, Apr. 29, by way of inaugurating the Silver Wing *de luxe* service to Paris, Imperial Airways Ltd. invited sundry people to Croydon Aerodrome to "have a little something about it" over the environs of London.

For the occasion Argosy G-EBLF, the *City of Glasgow*, was used. She is now painted silver outside and the inside is decorated in shades of blue and silver-grey. The name of the craft caused nervous people to think that they might have to pay high prices for the "little something," but this was not so.

Incidentally, Imperial Airways announce that in future their machines are to be alluded to by their Christian names and not by their type names. One regrets that neither oneself nor one's readers are ever likely to remember which is the *City of Timbuctoo* or the *Silver Wing*.

FEATURES IN THE
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CONSTRUCTION OF THE

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JUPITER SERIES VI RADIAL
AIRCOOLED ENGINE

No. 2.—The Induction System.

The triple induction system used on this engine is the only really correct system for even distribution, smooth running and good acceleration.

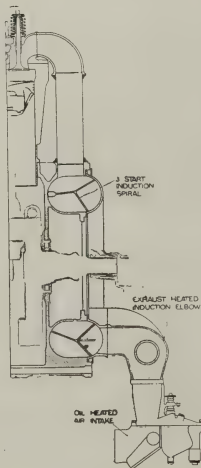
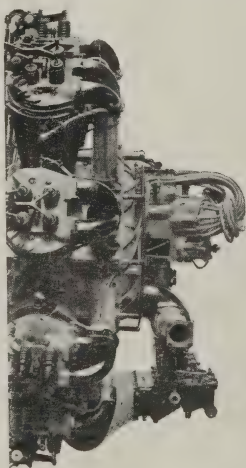
The "Bristol" Triplex Carburettor comprises three independent carburettors in one body. Each carburettor feeds one start of the patented induction spiral and each start feeds three equally spaced cylinders.

Official tests have demonstrated that with this system the engine will run steadily on six, or even three, cylinders.

The air intake, drawing warm air off the cylinders, and the oil-heated air intake elbow prevent any possibility of the engine freezing up at high altitudes.

The exhaust-heated induction elbow and the sheltered spiral chamber ensure thorough vapourisation of the mixture.

The carburettor variable jet, with dial indicator, simplifies tuning and the mixture corrector incorporated gives exceptional economy when cruising, while retaining maximum power at full throttle.



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[DON'T FORGET THE HAMBLE PAGEANT ON MAY 15.]

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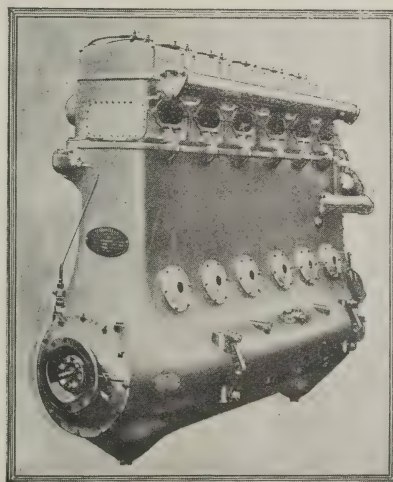
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Simplicity in design ensures low maintenance costs.



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Enquiries can be directed for convenience to Aero Engine Dept., William Beardmore & Co., Ltd., 36, Victoria Street, London, S.W.1.

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Lake City and so one will continue to refer to them by their makers' names and type numbers.

Eleven being a little early to appreciate the said "something," one chose a seat on the box next to the driver, Mr. Gordon Olley. Here there was a bulkhead between us and the cabin which the steward was unable to penetrate. Accordingly one enjoyed a flight in comfort, after which one was enabled to enjoy the "little something" on the ground at a more suitable hour.

Mr. Olley took the Argosy off on a fairly steep climbing turn and attempted to enter London over the wilds of Mitcham. We were repulsed however by mist and low clouds so we tried further west and were able to reach Putney Bridge with a fair amount of visibility. One was particularly struck by the straight "reaches" of the Sutton by-pass as seen from the air and the wonderful meanderings of the Kingston bye-pass.

The Argosy is a comfortable aeroplane in which to fly. The smooth running of the Jaguar engines was notable and it is a fact that one had been in the air for over ten minutes before one realised that there was an engine in the nose at all, in spite of the fact that it was only three or four feet away!

There is enormous travel in the undercarriage and the bumps of Croydon Aerodrome were not so noticeable to the Argosy as to other machines.

One must make one personal explanation. When the next load was about to take off it was noticed that the tyre of the starboard (at any rate, the right) wheel was flat. Many people blamed one personally for this, which is of course absurd. Possibly another of the ex-light-weight weights such as Mr. Jeffis, Mr. Perry, Mr. Muir, Mr. Tait-Cox or Mr. Geysendorfer had been sitting in the machine during the interval between the two flights.—G. D.

THE AIR MAILS.

The Postmaster-General announces that certain despatches of letters and parcels by Air Mail routes which were suspended during the Winter season will be resumed on May 2. Particulars of these resumptions, and of recent alterations to the Air Mail Leaflet are given in a Spring Supplement to the Leaflet obtainable at any Head or Branch Post Office.

A FINE FLIGHT IN A MOTH.

Her Grace the Duchess of Bedford, who is making a flying tour on a De Havilland Moth (Cirrus engine), arrived on Monday afternoon at Tangier on the North African Coast. She had flown from Seville, and passed over Gibraltar on the way.

During the journey to Morocco she has spent nights in Paris, Biarritz, Madrid and Seville. At the latter place, Mr. C. D. Barnard, who is the pilot, flew before H.M. King Alfonso and H.R.H. The Prince of Wales at a fête which was in progress when the aeroplane arrived. This display of aerobatics by a British pilot on a British aeroplane created a great impression.

In a cable to the De Havilland Aircraft Company the pilot reports that the Moth crossed three great mountain ranges, the Pyrenees, the Guadaramas and the Sierra Nevada without difficulty and that since leaving London he has not had to make the slightest adjustment to the machine.

AN INTERNATIONAL PRESENTATION.

On Apr. 30, His Majesty the King of Spain presented the Spanish trophy of the International League of Aviators to Comandante Franco, at the Tablada aerodrome, Seville, in the presence of their Royal Highnesses the Prince of Wales and Prince George. The Spanish Prime Minister, General The Marques de Estella, was also present, as was the donor of the trophy, Mr. Clifford B. Harmon, President of the League, and many Spanish dignitaries.

Large crowds witnessed the presentation of the trophy and the accompanying aeronautic demonstration. During the ceremony, two squadrons manned by Spanish aviators, flew in formation over the Royal party. The King thanked Mr. Harmon for what the League is doing for aviation and honoured the League by accepting its medal as a promoter of aviation.

AEROPLANE PICTURES.

Various readers of THE AEROPLANE have intimated their appreciation of the pictures of the flying at Bournemouth which have appeared in the two last issues of this paper. One feels therefore that as mere justice to the artist who was responsible for them one should say that practically all the photographs were taken by Mr. Burch of London News Agency Photos Ltd.

Mr. Burch has for many years been keenly interested in aircraft and has specialised on shooting aeroplanes on the wing instead of merely taking sitters. Therefore one would strongly recommend the London News Agency of 46, Fleet Street, E.C.4, the chief of which firm, Mr. Thomas H. McArthur, served in the R.A.F. during the War, to any manufacturer or owner of aircraft who wants a really good record of his machines in the air.

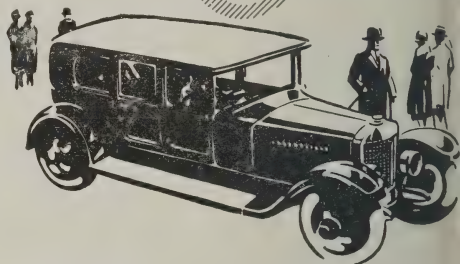
THE WORLD'S DURATION RECORD.

Scintilla, Ltd., the well-known makers of magnetos, have had a cable from New York informing them that the American pilots, Bert Acosta and Clarence Chamberlin, used Scintilla magnetos on the Wright Whirlwind engine

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AERONAUTICAL RESEARCH COMMITTEE,
Stability and Control Panel.
Report No. 1,000, pp. 36, 37.

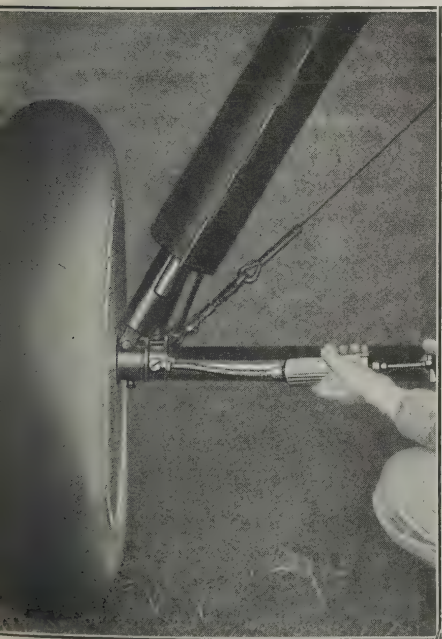
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fitted to the Bellanca monoplane on which they put up the very fine World's Non-stop Record of 51 hours 12 mins.

BEARINGS.

The Ransome and Marles Bearing Co., Ltd., of Newark-on-Trent, have just issued a general catalogue which should be in the hands of all technical people concerned with the design of aircraft and aero engines. The list is excellently arranged on the "thumb-index" system, and includes practically every type of ball and roller bearing that the heart of the engineer can desire, all the way from the smallest magneto bearing to the biggest double-row thrust bearing.

The fact that Major Segrave's car which put the World's Speed Record to over 200 miles an hour for the first time in history was fitted with Ransome and Marles bearings is fairly good testimony to the esteem in which the firm's products are held among motor designers. And one is probably fairly accurate in saying that Ransome and Marles bearings are used by all the best designers of aero-engines and aeroplanes.

Besides the actual list of bearings, the catalogue contains many useful facts and formulae about ball and roller bearings, and there is information about the R. and M. methods which must increase any readers' confidence in the firm's ability to supply the right stuff.

Copies of the catalogue will be supplied post free to any responsible person in the R.A.F. or in the employ of the Air Ministry or of an aircraft firm who asks for one.

WITH PALMERS TO PATIALA.

In a report which appeared in the daily press on Apr. 8 Mr. T. Neville Stack, speaking of his flight to India with Mr. Bernard S. Leete on two D.H. Moths (30-80 h.p. A.D.C. Cirrus II engines) said:—"Perhaps the thing that I regard as the most wonderful of the whole flight was that not once did I have to pump up my tyres. I flew altogether about 8,000 miles in all sorts of weather, and landing on all conditions of ground, including camel thorn, and yet the tyres did not once require pumping."

The tyres referred to were Palmer Cords, fitted to Palmer Landing Wheels, and a point which should be particularly noted is that the period covered by the flight was nearly four months.

A more definite piece of evidence of the wonderful effectiveness of Palmer products would be hard to find.

In fact Mr. Stack took Stag Lane air to India. He might reasonably have released it at Karachi to give R.A.F. per-

sonnel a breath of Home, on the lines of the mean motor cyclist who used to ride solo to Brighton, pump up his tyres there, and let the wind out in the hall on his return, "give the children a breath of sea air."

PERSONAL RECORDS.

A correspondent has written to this office asking whether living pilot has flown the greatest number of hours, would be rather interesting to find out who actually holds the record for the greatest number of hours flown, pilots who think that their own or anybody else's record is pretty high are invited to write to the Editor.

NAPIER RELIABILITY.

Sir Samuel Hoare, commenting on the reliability of British engines, recently remarked in the House of Commons that some 700 Napier engines have been run for over 250 hours before it is necessary for them to be overhauled.

This statement emphasises the reliability of the Napier Lion engine, which has attained such a state of efficiency that it is on as a measure of precaution that it is overhauled after it has run 250 hours—approximately 25,000 miles. Some Napier engines in use with the Royal Air Force have been in service for over 400 hours without being dismantled.

Imperial Airways run a number of Napier Lion engines on the service. These invariably run for 300 hours—approximately 30,000 miles—before it is considered necessary to inspect them to see anything has to be done to them.

PERSONAL NOTICES.

DEATH.

COWDRAY.—On May 1, at Dunect House, Aberdeenshire, Viscount Cowdray of Cowdray, in his 71st year.

MARRIAGES.

TANCRED-SLATER.—On Apr. 26, at Holy Trinity Church, Brompton, Christopher Humphrey Tancred, formerly of the R.A.F., only son of the late Mr. Clement Tancred and of Mrs. Tancred, a Margery Slater, daughter of Mr. S. H. Slater, C.M.G., C.I.E., and Mrs. A. E. Borton.

YORKE-SMITH-JOICEY.—In April, at Christ Church, Down Street, Mayfair, W.1, Francis Yorke-Smith, A.F.C. (late R.A.F.), of 20, Herford Street, W.1, to Mariska Joicey, of 13, South Audley Street, W.1, widow of James Joicey, Esq., J.P.

FORTHCOMING MARRIAGE.

JONES-BILLINGS.—The engagement is announced between Philip Jones, Flg. Off., R.A.F., eldest son of the late Mr. F. G. Jones and of Mrs. Jones, of Southampton, and Nowelle, eldest daughter of Mr. and Mrs. G. M. Billings, of Shanghai.

BIRTHS.

JOUBERT.—On Apr. 11, to the wife of Claude Joubert de la Ferté of Hilldrop Farm, Newcastle, Natal—a daughter.

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(P. B. Ex.)

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MIVATT STREET, BRISTOL

THE AEROPLANE

MAY 27 1927

INCORPORATING AERONAUTICAL ENGINEERING

Edited by
C. G. Grey

Vol. XXXII. No. 19.

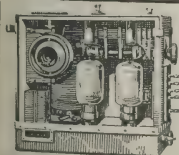
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THE LAND OF PROMISE:—A Canadian-Vickers Vedette (Armstrong Siddeley Lynx engine) belonging to the Royal Canadian Air Force, flying out into the West over Larder Lake on the opening flight of the 1926 Summer season.



AIR TACTICS.

Air tactics, such as formation control, require a means of instant communication between machines. This is provided by the Marconi A.D.S. aircraft telephone apparatus, specially designed to meet the wireless needs of small machines without in any way impairing manoeuvrability or fighting efficiency.

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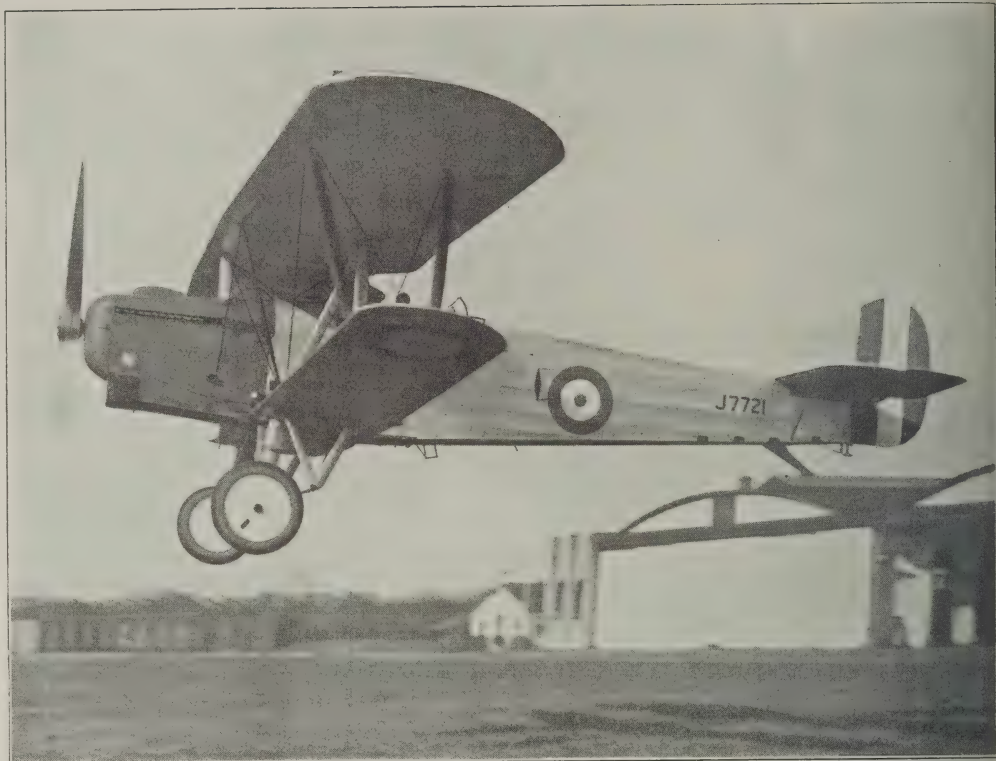
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*"Flight" Photo.***THE "HORSLEY."**

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ON CANADA'S PART IN AVIATION.

Canada's part in the early history of the World's aviation is considerably more important than is known by most people who are concerned with aviation to-day. Few people, for example, know that a very large portion of the pioneer work of American aviation was done by Canadians years before anybody in Europe did anything serious in the way of flying. In that interesting autobiography, *The Curtiss Aviation Book*, Mr. Glenn H. Curtiss, the great pioneer of flying in the United States, tells how in 1905, while in New York City, he first met Dr. Alexander Graham Bell, the inventor of the telephone. Dr. Bell, who was a Canadian, was at that time experimenting at his Summer home at Baddeck, Nova Scotia, with a strange apparatus which was scientifically called a tetrahedral kite, and was called by Dr. Bell himself an "aerodrome," because it ran in the air.

During the preceding few years Glenn Curtiss, who had gained international fame as a record-breaker on motor-cycles, had developed an extraordinarily light and powerful motor-cycle engine, and Dr. Bell believed that these light Curtiss engines would make flying possible. Consequently Curtiss went to Baddeck in the Summer of 1907, where he found two young Canadian engineers, F. W. Baldwin and J. A. D. McCurdy, fresh from Toronto University, helping Dr. Bell. Lieut. Thomas Selfridge of the U.S. Army, who was killed a year or so later while flying as a passenger on a Wright machine, was also there.

There was so much discussion about aeronautics, that Mrs. Bell suggested the formation of a scientific organisation to be known as "The Aerial Experiment Association." So the

Association was formed, as officially set forth, "to build a practical aeroplane which will carry a man and be driven through the air by its own power."

Dr. Bell was Chairman, Mr. Baldwin Chief Engineer, Mr. McCurdy Assistant Engineer and Treasurer, Mr. Selfridge Secretary, and Mr. Curtiss, as he says himself, "was honoured with the title of Director of Experiments and Chief Executive Officer." Thus historically the Aerial Experiment Association, which was the foundation of all the great Curtiss aeronautical activities, was formed in Canada with a majority of Canadian members.

The members of the Association migrated later in the year to Hammondsport, New York, where was the Curtiss home-stand. There they built their first machine, which was actually designed by Lt. Selfridge, and was called the *Red Wing*. Though all the members of the Association had some hand in its construction Mr. Curtiss emphasises the fact that the honour of being the final arbiter of its design certainly belongs to Mr. Selfridge.

This machine made its first actual flight on Mar. 12, 1908, over the ice on Lake Keuka, and the pilot was Mr. Baldwin, familiarly known as "Casey" Baldwin. Its altitude record was 6 or 8 feet, and its distance record was 318 feet 11 inches.

As Mr. Curtiss says, it took seven weeks to build the machine and about twenty seconds to smash it. But it made the first public flight of a heavier-than-air machine in America. The flights made by the Wright Brothers before this date had all been kept very private.



(Fairchild Aerial Surveys (of Canada) Ltd.)

WHERE CANADA'S HISTORY BEGAN.—Quebec, the oldest city in Canada. In the foreground is the famous Chateau Frontenac Hotel. Behind is the old Citadel and in the background the Heights of Abraham and the St. Lawrence River.

CANADA'S PIONEERS.

THE AERIAL EXPERIMENTAL ASSOCIATION.—Left to right,—F. V. Baldwin (of Toronto University), Lieut. Selfridge (U.S. Army), Glenn Curtiss, Dr. Alexander Graham Bell (of Baddeck, Nova Scotia), and J. A. McCurdy (of Toronto University), members of the first Aeronautical organisation on the American Continent, and builders of the first aeroplanes to fly publicly in the World. The sixth person is Mr. Augustus Post, a friend of the Associates.



The second machine built by the Association was designed by Mr. Baldwin, the Canadian. It was called the *White Wing*, and was flown for something like 300 yards by Mr. Curtiss on May 22, 1908. It is interesting to note that the planes of this machine were doped with varnish, at a time when all the other experimenters in the World were using bare fabric, sometimes coated with flour or tapioca paste to shrink it tight temporarily.

Thereafter the Association built the famous *June Bug* designed by Mr. Curtiss, and the *Silver Dart*, designed by Mr. McCurdy. On the *June Bug* Mr. Curtiss won the Scientific American Trophy. And the *Silver Dart* was shipped to Baddeck, Nova Scotia.

There, during the Winter of 1908-09, when hardly anybody had flown in Europe and when nobody had flown in England at all, except for short straight hops, Messrs. Baldwin and McCurdy flew something more than 1,000 miles over the ice in Canadian territory. Thus it may be seen that not only were Canadians far in front of Europeans in their actual aeronautical achievements, but they actually had a very considerable hand in laying the foundations of aviation in the

United States. Ultimately Mr. McCurdy developed into one of the best pilots of Curtiss aeroplanes in America.

The curious thing is that, after that first outburst of activity, aviation in Canada practically lay dormant until the outbreak of War except for a few exhibition flights by American pilots. Dr. Bell continued to experiment with his tetrahedron kites for some time, but drifted off onto other scientific activities, and Mr. Baldwin continued to work with him. In fact right up to the time of Dr. Bell's death he and Mr. Baldwin were together developing high-speed hydroplanes driven by aero-engines.

Only a year or two ago Mr. Baldwin was in this country demonstrating to the Admiralty and the Air Force that he could make towed targets for naval guns or aircraft bombs which targets would be of the size of a battleship and would cost only a few pounds to build. Mr. McCurdy was busy building aircraft during the War 1914-18, but has now, or believes, gone into a more profitable business.

THE NEXT PHASE.

Canada's next contribution to International Aviation will



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OUR LADY OF THE SNOWS.—Ottawa, the Capital of Canada, in Winter-time, showing the frozen St. Lawrence and the Parliament House.

Ottawa

the supply of pilots to the British Flying Services during the War 1914-18. Who was actually the first Canadian to come to this country one does not know, but one has a vivid recollection of a bunch of Canadians joining the Royal Naval Air Service in the very earliest days of the War, and developing into the most astounding pilots.

Nearly all of them had unholy skill in handling their machines and combined what looked like utter recklessness with genuine ability as pilots and mechanics. And they were nearly all what are commonly known as "characters," of various and assorted kinds.

Few who ever met him will forget Peberdy of the R.N.A.S., who was unfortunately killed in the early days of the War. And during the War the names of Leckie, Shook, Bishop, Barker, Bell-Irving, MacLaren, Collishaw and others were as familiar to people who were closely connected with the Flying Services as were the names of the much advertised continental "aces." The work of the Canadians was every bit as good, but we did not advertise our people in the same public way.

It is true that quite a number of the Canadians were neo-Canadians from the United States who became British officers year or more before the States came into the War, but the vast majority were genuine Canadians. Probably there is no day at this time of discovering how many of them were British born and how many were Canadian born. They were all equally Imperial in sentiment and all equally Canadian in far as local patriotism went.

The greatness of Canada's effort is well shown in the *Royal Air Force Diary* for 1927, which states that a total of 1,239 Canadian officers, that is from the Canadian Militia or the Canadian Navy, were seconded or attached to the R.N.A.S., the R.F.C. and later to the R.A.F., and that over 4,000 Canadian cadets were commissioned in the Flying Services. Part from them the number of Other Ranks of Canadians transferred and subsequently commissioned was about 2,750. Altogether at the time of the Armistice there were over 200 Canadian officers in the R.A.F., and 1,200 Canadian cadets were in training in England and in Canada. That certainly was a very stout effort for a country whose total population at that day was about seven million.

The curious thing about this is that although Canada had her own Army, Canada never attempted during the War to organise a Flying Corps of her own. Readers of *THE AEROPLANE* will remember that Australia's aviators practically all joined the Australian Flying Corps and that there were hardly any Australians in the British Flying Services, whereas towards the end of the War almost every second man met in R.A.F. uniform seemed to be a Canadian.

AFTER THE WAR.

After the War there was a slump in Canadian aviation just as there was in aviation all over the rest of the world.

But, as related in the articles by Capt. Sayers and Mr. Bridgman which follow hereafter, Canada very soon became extremely active in aviation.

Here again Canada and Australia went on entirely different tracks. The Australians organised air lines with Government subsidies, which have proved to be the most efficient in the World. The Canadians went in for air survey, and have done more such work than probably the rest of the World put together. But to this day there is no such thing as a permanent air line in Canada.

The most remarkable thing about all this post-war flying in Canada is the astonishing skill of the pilots and mechanics who have got such an enormous amount of work out of old war-time corks of machines and engines, American and British alike. This success is not at all surprising to those who knew the Canadians during the War. And it is worthy of all praise. But men of such ability ought not to have been condemned to work for many years with such material.

Only during the last year or two have Canadian aviators, in the Royal Canadian Air Force and out of it, been given anything modern to fly. And the unfortunate thing is, from our point of view at home, that the majority of the new aircraft which are going into Canada are designed and built in the United States.

AMERICA FOR THE AMERICANS.

The reason why the American aircraft industry is getting such a hold in Canada is fairly obvious. The Canadians import almost everything from the United States, all the way from their automobiles to their accents, and so much as is not imported is manufactured in Canada either to American design or at any rate under American influence. Also it is quite natural that Canada should buy aircraft and aircraft material from the United States when one considers that spare parts and replacements can be got from the States in reply to a long-distance telephone call within two or three days, whereas it would take a letter at least a week to get from Canada to England, and the goods sent in return would probably take a month to arrive after that.

Also, almost every maker in the States supplies as a stock model a machine with a 200 h.p. air-cooled engine carrying a pilot and four or five passengers at 100 m.p.h. or so, which is an economical proposition. And such a type does not exist in this country.

One prominent manufacturer of aircraft material in this country recently told one frankly that he is not interested in Canada because Canada is so near to the States and that anyhow he cannot compete with American prices. Admittedly it is difficult to compete under the circumstances, but it certainly is not impossible for any really good business man who is prepared to make a serious effort to get Canadian business.

Success may mean opening a factory, or at any rate a



(Fairchild Aerial Surveys (of Canada) Ltd.)

THE GATE-WAY OF CANADA.—Quebec Bridge over the St. Lawrence River, which fell down the first time it was built by an American contractor. In spite of its diminutive appearance in the photograph this is one of the largest single-span bridges in the World, and its erection was a famous feat of engineering. 20,000-ton vessels pass under this bridge en route for Montreal.

The Avro AVIAN LIGHT SEAPLANE

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At the recent Bournemouth Flying Meeting one of these machines obtained three "Firsts" and one "Second" in one day.

As a Seaplane it is particularly suitable for use in Canada. As a means of transport for long trips it saves an immense amount of time, besides cutting out the labour and discomfort inseparable from slow tedious journeys.

The Seaplane can be readily converted into a landplane if it is desired to use it in that form. The choice of two engines is offered: the "Cirrus" Mk.II or the "Genet."

As will be seen from the following figures the AVIAN Seaplane has a very fine performance.

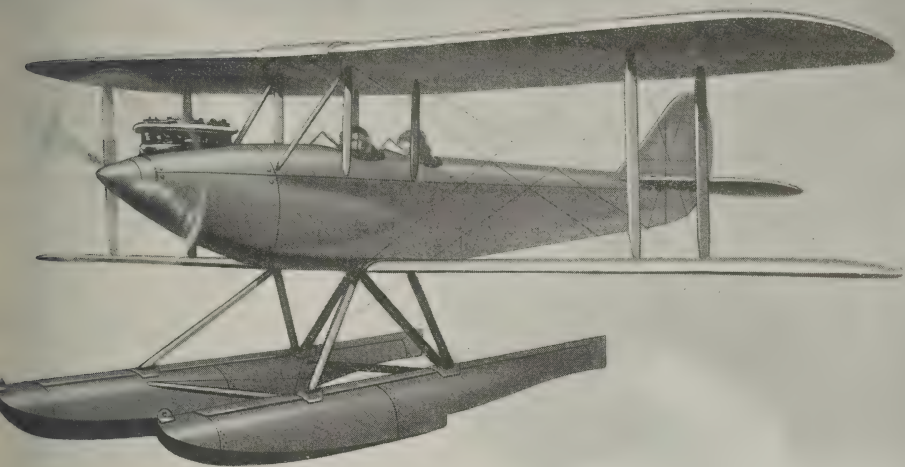
PERFORMANCE FIGURES.

Top Speed	...	...	100 m.p.h.
Cruising Speed	...	...	80 m.p.h.
Landing Speed	...	...	42 m.p.h.
Duration at Cruising Speed	4 hours.
Rate of Climb at Ground Level	...	500 ft. per min.	
Ceiling	15,000 ft.

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Service Depot and Repair shop, in Canada. But the effort would certainly be worth while, for Canada, like Australia, is going to be one of the greatest countries in the World for air communications.

Therefore one is all the more pleased to hear that the de Havilland Company, whose machines have done so much to help the development of aviation in Australia, have every intention of opening a branch establishment in Canada on lines similar to those of their Australian branch.

CANADIAN REQUIREMENTS.

The number of American aircraft shown in this week's issue of THE AEROPLANE which have been recently built in the States and meet Canadian requirements, should be a lesson to the British Aircraft Industry that it is quite time for us to take a serious and an intelligent interest in Canadian requirements.

Some years ago the Canadian Government issued to the whole British Aircraft Industry a very complete specification of a particular type of seaplane which was needed for survey and forest patrol work in Canada. So far as one can remember, not one British firm tackled seriously the problem of meeting that specification. As is the habit of the British shopkeeper we tried to sell what we had got in stock instead of making what the customer wanted.

More than one bright and brainy aircraft designer in this country said that he did not believe that a seaplane could be built to meet the requirements. At any rate, no British firm got any orders for machines built to that specification.

What happened was that American firms got orders for machines which put up a performance approaching that of the specification. Then Mr. Reid, late of the Bristol Company, who had joined Canadian Vickers Ltd., proceeded to build machines, with the help of a drawing office and workshop staff who had never done any aircraft work, which actually beat the specification. Which is yet another example of what one can do when one wants to when one tries.

The pity is that our British constructors did not take that specification seriously and try to produce something near it. If we had done so we might now be doing very good trade in Canada.

CANADA'S IMPORTANCE.

Canadian requirements are actually of much greater importance to us as a Nation, and as part of an Empire, than can be measured by the mere money value of the orders which we are likely to get from Canada in the immediate future. We ought to look at Canada's aeronautical problems more in the light of Canada's importance in the British Commonwealth of Nations.

Canada's strategic position in the next war is of the utmost importance. When Japan starts on her would-be career of conquest in the Pacific, Canada is bound to feel the effects almost immediately.

It is true that the manufacturing and agricultural districts of Eastern and Central Canada are mentally and politically as remote from British Columbia as is the Pacific Slope of the United States from the Middle West and the Eastern States. But Canada's Pacific Slope is in fact of the utmost importance.

If we are not prepared to defend it and its adjacent islands, the coastline and the islands may easily be seized by the Japanese Fleet as a base for air and sea operations against

our other American relatives. But, if we are prepared to defend that coastline, ultimately it will become of great value to our American Allies in their counter-attack on Japan by way of Alaska and Saghalien.

Apart from that, Canada must be considered as a source of supply of pilots for the next war and as providing full training for Service aviators. We know how good the Canadians were in the last war and we know how equally good they will be in the next war. In fact, the probability is that the Royal Canadian Air Force will itself be able to defend its own coast and eventually counter-attack from the coast while our own Royal Air Force is busy operating on the other side of the Pacific from Singapore and other bases in Australia.

For purposes of co-operation between the R.A.F. and the R.C.A.F., it is most important that the equipment and training should be as uniform as possible. And consequently special effort should be made to ensure that the equipment of the two Air Forces should be identical.

In any case, when once the war begins, the United States will need all their own aircraft material and there will be none to spare for Canada. Consequently there is every reason why the Canadians should buy from England whatever aircraft material they cannot produce themselves, and why the British Aircraft Industry should pay special attention to Canadian requirements.

Of course, it is all very well to plead for Imperial preference and to talk about blood being thicker than water and all the rest of it, but we cannot expect the Canadian Government, or individual Canadians who wish to buy aircraft, to pay us more than the price they would pay in the States for an engine or an aeroplane which will do the same job just as well. We are inclined to regard the Canadians as unpatriotic for buying American aircraft, but before we have any right to do so we must ourselves first of all stop buying American automobiles and American films and American shaving soap and thousands of other American things.

So long as the States offer the Canadians better prices of better service or better performance than we do, and at the same time give equal safety by way of equal reliability and equal strength, we cannot expect the Canadians to buy from us. One can only hope that there are to be found in the British Aircraft Industry a certain number of manufacturers who, in spite of American competition, will be able to do business in Canada.

The articles which follow hereafter will serve, one hopes not only to give everybody concerned with aviation in Canada something like a working knowledge of the conditions of Canadian aviation, but that they will also serve to give a number of Canadians a general review of what Canada has done to win and maintain that supremacy in the air which in spite of rivalry in war and peace, still belongs to the British Empire.—C. G. G.

THE R.C.A.F. TO VISIT WASHINGTON.

It is reported that certain officers of the R.C.A.F. are to fly to Washington to take part in the Pan-American Aeronautical Displays during this month. They will use one of the new Fokker monoplanes which have been purchased by the R.C.A.F. for the Hudson Straits Ice Patrol.



CANADIAN PREFERENCE.—A Fokker Universal (200 h.p. Wright Whirlwind engine) owned by Western Canada Airways Ltd. and used between the railway at Hudson, Ont., and the Red Lake mining area.

THE ROYAL CANADIAN AIR FORCE.

In 1909, following on the experiments made by Dr. Graham Bell and Messrs. McCurdy and Baldwin at Baddeck, Nova Scotia, the Department of Militia and Defence became interested in the possibilities of military aviation. Lieut.-Col. G. S. Maunsell, of the Royal Canadian Engineers, then Director of Engineer Services, was specially active in encouraging these early efforts, and arrangements were made for these pioneers to make a series of flights at Petawawa Camp during the summer of 1909 in connection with the training of the Militia.

Every assistance was given to the aviators, but unfortunately the ground at Petawawa was too rough as an aerodrome, and after several trial runs on the ground their machine crashed on landing after its first flight, before it had a chance to show the practical possibilities of air observation.

With this failure Government interest in aviation ceased and until the outbreak of the War 1914-18, aviation in Canada simply did not exist. In June, 1914, two officers of the Canadian Militia were sent to England for a course of instruction in connection with a proposed plan to establish a Flying Corps, but nothing came of this plan.

THE WAR-YEARS.

In 1915, a flying school was opened by a Canadian branch of the American Curtiss company, under the management of Mr. J. A. D. McCurdy, who in 1908 had been the first Canadian aviator, and this school trained a large number of aviators for service in the Royal Flying Corps and the Royal Naval Air Service. Similarly, a number were trained at a school operated by the Thomas Bros., of Ithaca, N.Y.

In 1917 the Royal Flying Corps opened a flying school in Canada, and here a large number of Canadians were taught to fly by British instructors for service in the R.F.C.

During the Winter months the bulk of the personnel of this school transferred by arrangement with the Government to the United States to Fort Worth, Texas, where instruction could be carried on under normal summer conditions. A certain number remained behind in Canada, and there is much interest in the fact that these pilots flying off the snow on standard military training type aircraft mounted on skis instead of wheels put in more hours' flying per man than did those in the ideal climate of Texas. Thus they proved conclusively the possibilities of operating machines in Winter in snow-covered countries.

During the War 1914-18, over 14,000 Canadians became pilots in the British Flying Services, where many of them did remarkably fine work. But with the signing of the Armistice and the subsequent wholesale demobilisation the great

majority returned to civil life and thus became lost in a country which had never shown much enthusiasm for aviation.

The remarkable progress of aviation during the war years, the return of several young, able and enthusiastic officers, coupled with the fact that Canada presented a huge field for experiment, aroused a certain amount of interest. As in every other country, a certain number of individuals imported some war-designed aeroplanes and embarked on an indiscriminate species of so-called commercial aviation, consisting mainly of "joy-riding," carrying newspapers, etc., all of which, by lack of organisation and lack of knowledge, tended to do more harm than good.

THE CANADIAN AIR BOARD.

On June 6, 1919, the Air Board Act was passed. By an Order in Council, dated June 23, 1919, the following officials were appointed:—

The Hon. A. L. Sifton was named as Chairman of the Board. Col. O. M. Biggar, the Judge Advocate-General, was Vice-Chairman. The Hon. S. C. Mewburn, Minister of Militia and Defence, was representative on the Board of the Department of Militia and Defence. The Hon. C. C. Ballantyne, Minister of the Naval Service, was representative on the Board of the Department of the Naval Service.

The remaining members were,—Dr. R. M. Coulter, C.M.G., Deputy Postmaster-General; Mr. J. A. Wilson, Assistant Deputy Minister of the Naval Service (who acted as Secretary), and Mr. E. S. Busby, Chief Inspector of the Department of Customs and Inland Revenue.

The Board was called together immediately, and after consultation with the Civil Service Commission it was decided that the work of the Board should be divided into three branches, having at their heads respectively a Superintendent of Flying Operations, a Superintendent of the Certificate Branch and a Secretary. The proposal was that the Secretary should administer the internal office organisation, that the Superintendent of Operations should control all Government flying, and that the Superintendent of the Certificate Branch should conduct that portion of the administration which related to the public and was concerned with the licensing of personnel, aircraft and air harbours.

By the end of 1919, the following officers had been appointed to these posts:—

Lieut.-Col. J. Stanley Scott, M.C., A.F.C., Superintendent of the Certificate Branch; Lieut.-Col. Robert Leckie, D.S.O., D.S.C., D.F.C., Superintendent of Flying Operations; Major A. M. Shook, D.S.O., D.S.C., A.F.C., Secretary, and Capt. F. R. Smith, Medical Officer to the Certificate Branch.



AN AERIAL SURVEY PARTY.—From left to right: Corpl. Milne, Sq. Ldr. B. D. Hobbs, D.S.O., D.S.C., Mr. R. Davidson, of the Topographical Survey (navigator), and Flg. Off. Cairns (photographer) who undertook aerial survey operations in the Reindeer Lake and Churchill River districts, Manitoba, in 1924. The machine is a Vickers Viking.

Soon after the formation of the Air Board, negotiations were begun with a view to taking over the seaplane stations erected during the war at Halifax and Sydney by the Department of the Naval Service, together with that portion of Camp Borden which was developed as an aerodrome by the R.F.C. and R.A.F. and had been acquired by the Department of Militia and Defence after the war.

At this time the Imperial Government presented to Canada aircraft and equipment to the value of £5,000,000, including 80 aeroplanes, 14 flying-boats, 12 airships, 6 kite-balloons (with inflating plant and sheds), 300 motor vehicles, and a substantial amount of armament, wireless instruments, cameras, and other technical and general stores.

In addition, the Air Ministry presented an additional sixteen seaplanes to the Canadian Government as replacements for those presented from time to time during the War to the Canadian Forces through the activities of the Overseas Club.

THE FORMATION OF THE C.A.F.

The question of the constitution of a Canadian Air Force was an early subject of consideration by the Air Board, and on Dec. 22, 1919, there was adopted, for submission to the Privy Council, a memorandum covering the general lines of the organisation proposed.

In April, 1920, owing to a change of Government, the Air Board was re-organised as follows:—

The Hon. Hugh Guthrie, K.C., M.P., Minister of Militia and Defence (Chairman of the Air Board); Col. O. M. Biggar (Vice-Chairman); Dr. E. Deville, LL.D., Surveyor-General; Capt. W. Hose, C.B.E., R.C.N., Director of Naval Service; Air Vice-Marshal Sir W. G. Gwatkin, K.C.M.G., C.B., *p.s.c.*, Inspector-General, Canadian Air Force; Wing Cdr. J. S. Scott, M.C., A.F.C., Controller of Civil Aviation; Wing Cdr. R. Leckie, D.S.O., D.S.C., D.F.C., Director of Flying Operations and Mr. J. A. Wilson, Secretary of the Air Board.

In April, 1920, the Canadian Air Force was authorised by the Canadian Government. This force was organised on the lines of the Militia with a nucleus of permanent officers and other ranks for administrative and instructional purposes.

The total authorised strength of this force was approximately 5,000 and all officers and airmen, other than the Permanent Staff, were required to attend training centres, which were open throughout the year, for one month out of twenty-four, being on leave without pay at all other times.

On Jan. 1, 1923, the Departments of Militia and Defence, Naval Service and the Air Board, which previously administered the Army, Navy and Air Force respectively, were amalgamated by the formation of the Department of National Defence.

THE ROYAL CANADIAN AIR FORCE.

The Royal Canadian Air Force was constituted under the Statutory Authority of the Air Board Act, the powers previously assigned to the Air Board by the Air Board Act being

transferred to the Minister of National Defence by the National Defence Act.

On the formation of the R.C.A.F. the following officials were appointed:—

Acting Director, R.C.A.F. and Assistant Director of Organisation, Training and Operations:—Wing Cdr. J. L. Gordon, D.F.C. Assistant Director of Technical Supply and Transport:—Wing Cdr. E. W. Stedman. Assistant Director and Secretary:—Mr. J. A. Wilson. Controller of Civil Aviation:—Sq. Ldr. L. S. Breadner, D.S.C.

The new force, a permanent one, provided an establishment of 68 officers (5 Wing Commanders, 8 Sqn. Ldrs., 17 Flight Lieuts., and 38 Flying and Pilot Officers), and 307 other ranks.

In 1926, the establishment was raised to 95 officers (One Group Captain, 6 Wing Commanders, 11 Sq. Ldrs., 20 Flight Lieuts., and 57 Flying and Pilot Officers), and 375 other ranks.

No Medical, Signal, Engineer, Quartermaster, Pay or Contract Services are included in the Air Force, all this work being done by one central organisation under the Department of National Defence, which arrangement eliminates duplication and makes for considerable economy by reducing overhead costs.

The principal stations of the R.C.A.F., with their functions, are as follows:—

R.C.A.F. HEADQUARTERS—at the Department of National Defence, Ottawa.

VANCOUVER (seaplane station)—at Jericho Beach, Vancouver. Operations:—Seaplane training, fishery patrols, Customs patrols, transportation, blister rust control, forestry patrols for the British Columbia Government on repayment.

HIGH RIVER (landplane station)—at High River, 30 miles S. of Calgary, Alta., on the C.P. Railway. Operations:—Forest fire detection and aerial photography for survey purposes.

VICTORIA BEACH AND NORWAY HOUSE (seaplane station during the Summer season)—on the E. shore of Lake Winnipeg at S. and N. ends of lake respectively. Operations:—Forest fire detection, forest fire suppression, aerial photography for survey purposes, transportation.

CAMP BORDEN (training station, landplanes)—60 miles N. of Toronto, Ont., on the W. shore of Lake Simcoe. Operations:—Training.

OTTAWA (seaplane station)—at South March, Ont., 8 miles W. of Ottawa. Operations:—Aerial Photography for survey purposes. Transportation, experimental work in connection with the development of aircraft accessories.

DARTMOUTH (seaplane station)—at Dartmouth, near Halifax, N.S. Operations:—Aerial photography for survey purposes, transportation.

PHOTOGRAPHIC SECTION—at Ottawa. Operations:—Development of photographic equipment and methods, preparation



THE IDEAL HOME. Victoria Beach Air Station, one of the three R.C.A.F. operating bases in Manitoba. The rail-head may be seen in the background.

R.C.A.F., CAMP BORDEN—JULY, 1926.



THE BACKBONE OF THE R.C.A.F.—The District Officer Commanding and Staff No. 2 Military District and the Officer Commanding, the Officers and Cadets, No. 1 Flying Training Station, R.C.A.F., Camp Borden, July, 1926. (The photograph is, in its original form, a long strip of which the top section is the left end and the bottom section the right.) The officers in the middle row of each section, reading from left to right and beginning at the top, are:—Plt. Off B. M. Aronson, —, Fig. Off. E. E. Middleton, Fig. Off. J. L. de Niverville, Flt. Lt. R. Collis, —, Flt. Lt. G. V. Walsh, —, Major Rogers (camp engineer), Sq. Ldr. A. B. Shearer, O./C. Signals, O./C. No. 2 Military District, Wing Cdr. N. R. Anderson (O./C. Camp Borden), —, Flt. Lt. G. J. Blackmore, Flt. Lt. G. E. Brooks, —, Fig. Off. F. J. Crossfield, Fig. Off. F. V. Heakes, Fig. Off. D. A. Harding, —, —, —, —. The back and front rows are all Cadets.

in the finished form of all aerial photographs for Government Departments and individuals.

TECHNICAL DEPOT—at Victoria Island, Ottawa.

The Technical Depot comprises:—(i) Engine Repair Section. (ii) Aircraft Repair Section. (iii) Aircraft Inspection Section. (iv) Stores Depot. This is the Central Stores Depot for all R.C.A.F. units in Canada.

In addition to the above permanent air stations, each year a number of temporary sub-stations are established as bases for aircraft engaged on operations away from the main stations.

R.C.A.F. PHOTOGRAPHY.

The R.C.A.F. Photographic Section, situated at Elgin Cottage, Ottawa, is claimed to have the largest output of aerial survey photography in the World. The staff consists of the Commanding officer, a Flight Lieut., R.C.A.F., who is a photographer by profession, one photographic officer, one warrant officer in charge of stores and thirteen N.C.O.'s and men, all of whom are skilled in photographic work.

The section is a unit complete in itself, having its own photographic stores, from which are supplied the photographic material and instruments for all units. It also trains the photographic personnel and is responsible for all other matters pertaining to its particular functions.

Each unit is furnished with equipment for the development of ordinary plates and films. But the work of developing and printing large rolls, which requires special equipment, is centralised at Ottawa.

In 1925, 255 rolls of film, each of which is 75 feet long and contains 115 7-inch by 9-inch negatives, were handled at Ottawa, besides many individual negatives taken with other types of cameras.

Over 50,000 prints were made during the year, the majority of which were for the Department of the Interior, for aerial survey purposes.

The section is equipped with enlarging and copying cameras and undertakes a considerable quantity of miscellaneous photographic work for the other services in the department.

THE OTTAWA AIR STATION.

The Ottawa Air Station, previously situated at Rockliffe, was moved in May, 1925, to South March, on Lake Deschenes, 12 miles W. of Ottawa, on property owned by the Government. This is purely a seaplane base, but the old landing ground at Rockliffe is still available for land machine use.

This base is used for experimental work, trials of new aircraft, transportation and any civil operations which may be required in Eastern Ontario and Western Quebec.

During 1925, the first Vickers Vedette, which was delivered late in the fall of 1924, completed her trials successfully in the Spring and was employed during the Summer on a series of test operations in order that her suitability for different classes of work might be proved.

In the same way, an Avro central-float seaplane, fitted with a 200 h.p. Wright Whirlwind engine, manufactured by Canadian Vickers Ltd., was put through a series of tests.

Late in the Fall of 1925, the Vickers Varuna was delivered by her builders to South March, and her trials were conducted successfully late in 1925 before the freeze-up of the Ottawa River, and in the Spring of 1926.

CAMP BORDEN.

The Camp Borden air station is the chief landplane training station of the R.C.A.F. The total personnel consists of 19 officers and 133 other ranks.

During 1924, 31 Pilot Officer Cadets were given instruction and in 1925, 45 Pilot Officer pupils were passed out.

The principal training equipment consists of Avro 504

biplanes fitted with either Le Rhone or Armstrong-Siddeley Lynx engines.

THE VANCOUVER STATION.

The Vancouver air station undertakes all seaplane training in addition to the ordinary civil flying. During 1925, over 178 hours were put in on seaplane training, seaplane flying training, ordinary Service training and artillery co-operation work.

EQUIPMENT.

Up to 1923, practically all R.C.A.F. flying was done on war-time design aircraft. At this time, the necessity for obtaining new types, particularly seaplanes, more suitable for Canadian conditions became urgent.

The R.C.A.F. called for tenders for the construction of eight amphibian flying-boats and made it a condition that the aircraft should be constructed in Canada. The successful tenderers were Canadian Vickers Ltd., who were given a contract for eight Vickers Vikings, which type of machine successfully replaced an equivalent number of the old HS-2-L type of flying-boat.

In 1924, the Board decided that the D.H.4 biplane was unsuitable for forest patrol work. Consequently in 1925, five Avro single-seat biplanes, fitted with the 210 h.p. Viper engine, were delivered by Canadian Vickers Ltd. to the High River air station for this work. These machines, of lighter construction, with a lower landing speed and of less first cost, proved to be more economical to maintain and operate than the larger D.H.4.

In 1925 and 1926, Canadian Vickers Ltd. produced the Vedette and the Varuna flying-boats, both of which proved to be eminently successful and a number of these have been delivered or are on order for the R.C.A.F. and certain civil operators.

In 1926, the R.C.A.F. issued specifications for the construction of three new types of aircraft. These machines, the Velos, the Vista and the Vigil are being constructed by Canadian Vickers Ltd. and are illustrated and described in another part of this paper.

GENERAL POLICY.

It will be seen that the operations of the R.C.A.F. are very largely of a civil nature. These activities are fully described elsewhere. The general policy of the R.C.A.F., which is responsible for the development and maintenance of air power in Canada, includes not only the Air Force and its reserves, but the whole development of aeronautics in the country. The more widespread this development is, and the sounder the economic basis on which it rests, the more effective will be the Air Power of the country.

Canada maintains a permanent Air Force which is small, but which, at the same time, provides for adequate Air Force training, a nucleus around which may be formed in time of war or emergency active service units sufficient to meet the strategical situation existing, and the conduct of any flying operations required by other branches of the Government Service. The policy of the Government, as expressed in the Air Board Act, is that all flying services for the civil functions of the Government be carried out by one organisation.

That this policy is sound goes without saying. It has been responsible for the biggest development of aerial photographic survey in the British Commonwealth of Nations and the development of a small but sound Aircraft Industry, the only one in the Empire outside Great Britain. Neither of these developments owes its inception directly to the War 1914-18, but they are natural developments dependent on one another, and they demonstrate very conclusively that aviation can hold its own commercially without having to be heavily subsidised.—L. B.



CANADIAN PREFERENCE.—A Stinson-Detroit (Wright Whirlwind) as used by Patricia Airways and Exploration Ltd.



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AIRCRAFT AND AERO ENGINES.



Martinsyde P4

Rolls-Royce "Eagle 8."

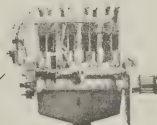
D.H.9a



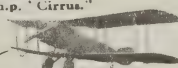
300 h.p. Hispano Suiza.



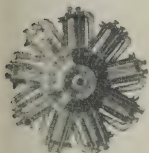
Avro Type 504K.



2700 h.p. "Cirrus."



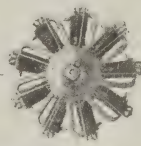
Bristol Fighter.



230 h.p. "R.2"



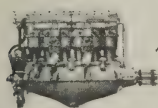
D.H.9



110 h.p. Le Rhon



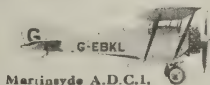
Sopwith Snipe.



240 h.p. Siddeley "Puma."



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Martinsyde A.D.C.I.



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THE HISTORY OF CANADIAN CIVIL FLYING.

Civil Aviation in the Dominion of Canada has been developed almost entirely as a result of the intelligent and far-seeing policy adopted from the beginning by the Department of the Dominion Government responsible for the control of aviation.

THE EXPERIMENTAL PERIOD.

The Air Board Act, which authorised the formation of a body to control Civil Flying in the Dominions in accordance with the terms of the International Convention for Aerial Navigation, received the Royal Assent on June 6, 1919. The chief officers of the Air Board were appointed within less than three weeks, an Order in Council prohibiting dangerous flying was passed on July 7, and a complete set of regulations governing Civil Flying had been drafted and approved by the Governor in Council by Dec. 31, 1919. These regulations were published, and all the necessary forms for use under them were ready by Jan. 17, 1920. From this record it will be obvious that the Canadian Air Board was very much alive.

As early as November, 1919, the Air Board began a preliminary investigation to discover what public services could be performed more efficiently and more economically by air than by other available methods.

Canada was divided into four districts, ex-R.A.F. officers were borrowed, or temporarily employed, to survey these districts. And on Jan. 2, 1920, these officers met officers of the Air Board at Ottawa and their reports and opinions were thoroughly discussed.

It was decided that the less thickly settled and less thoroughly explored districts of the Dominion offered the most favourable opportunities for aircraft operation.

On Jan. 10 a Conference of Government Departments was held. At this Conference estimates were provided of the probable costs of operating aircraft, and their probable usefulness for such purposes as forest fire protection and aerial survey, together with a list of places which were considered suitable for air stations.

And as a result of these considerations proposals for a series of operations in the Summer of 1920 were drawn up and authority for the carrying on of such work was obtained from the Dominion Parliament.

These experimental operations were completed with considerable success. And with the concurrence of certain other Government Departments, notably the Forestry Departments of some of the Provincial Governments, a still more extended scheme of operations was carried out in 1921 and 1922.

This work, which included forest fire patrol, forest fire fighting, aerial survey, and the making of forest inventories both by photography and by sketching, was done by aircraft and personnel of the Civil Department of the Air Board. In some cases the cost of the operations was defrayed, or partly so, by the Forestry or other Departments interested.

Here it may be remarked that as early as the Summer of 1919, Mr. Ellwood Wilson, then Chief Forester of the Laurentide Company, realising the value of aerial forest patrol, had established a seaplane base at Lac La Tortue, near Grand'Mère, Quebec, had engaged a pilot and acquired two HS2-L flying-boats (the obsolete equipment of the U.S. Navy) and operated them through 1920 and 1921 with marked success as a department of the Laurentide Co.

In 1922 this undertaking was separated from the Laurentide Co. and became the Laurentide Air Services Ltd. and during the year of its formation this new company obtained an important contract from the Government of Ontario for forest reconnaissance in preparation for an inventory of timber.

1923.

On Jan. 1, 1923, the Canadian Air Board ceased to have a separate existence, and became part of the Dominion Department of National Defence. The R.C.A.F. ceased to be a Militia and became a regular and permanent Service and absorbed the special Civil Flying section which had done this early experimental work. Since that date all work of this kind done by the Dominion Authorities has been performed by the regular personnel of the R.C.A.F. from R.C.A.F. Air Stations.

There has been no decrease in the amount of Civil work of this kind done by the Dominion Authorities as a result of this change in the organisation of the Department controlling aviation.

There has however been a very marked change in the general position of Civil Aviation in Canada. The result of the flying by the R.C.A.F. on forest patrols, etc., for the Provincial Governments of Ontario and Quebec had definitely proved its utility, and the Dominion Authorities, feeling that in these particular cases the experimental stage had been passed, determined to withdraw and leave further operations in these provinces open to commercial enterprise.

The Ontario Provincial Government thereupon, in the Spring of 1923 entered into a contract with the Laurentide Air Services Ltd. (already mentioned) by which the latter undertook all flying needed for forest sketching, fire detection and fire fighting.

The Quebec Provincial Government similarly entered into a contract with the Dominion Aerial Exploration Co., which had been formed in the Autumn of 1922, to operate the Roberval Air Station on Lake St. John to do fire patrol, photography and forest-sketching work.

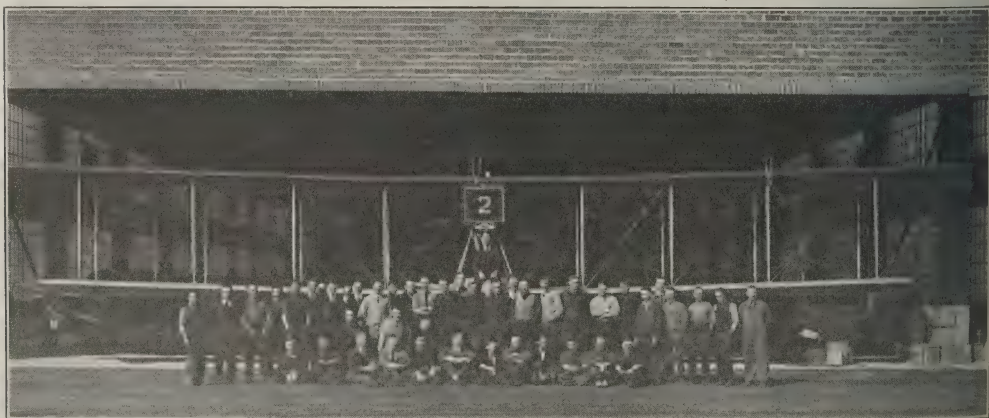
This particular contract appears to have covered only technical management. The actual pilots and the machines used were lent by the R.C.A.F. The observation and so forth apparently was done by forestry officials.

Under this contract over 10,000 square miles were mapped and a total of 20,000 square miles was explored by either photography or sketching or general reconnaissance.

In addition to the two companies afore-mentioned, the Fairchild Aerial Surveys Company (of Canada) Ltd. was formed in 1922 in close association with both the Fairchild Aerial Camera Corporation of New York and with Mr. Ellwood Wilson of the Laurentide Air Services. During 1923 this company engaged in aerial survey work for forestry, engineering, and town-planning purposes, and covered some 500 sq. miles by vertical photography.

The Ontario Pulp and Paper Co., after an experimental air survey of certain of their forest land in August, 1922, made by an American pilot, purchased a flying-boat and engaged a pilot and mechanics, and during 1923 reconnoitred 6,000 sq. miles of unmapped territory, photographed water-power sites, and carried some 17,600 lbs. of freight and 35 passengers on the company's business.

Commercial flying having thus found its feet in these two Provinces, the R.C.A.F. devoted itself during the Summer



THE MEN WHO MAKE CANADA.—The personnel, hangar and one HS2-L flying-boat belonging to the Ontario Provincial Air Service, Saulte Ste. Marie, Ontario.

of 1923 to a programme of work which had been arranged at a Conference of Government Departments held in the Spring of that year.

The bulk of this programme referred to work in the Central and Western Provinces of Manitoba, Alberta and British Columbia, but included also a certain amount in Nova Scotia and Ontario, and some photographic surveys near Montreal (Quebec) undertaken for the Dominion Water Power Department.

For this work six main stations of the R.C.A.F. were in use—Vancouver, B.C.; High River, Alberta; Winnipeg, Manitoba; Ottawa, Ontario; and Dartmouth, Nova Scotia.

The programme as originally laid down could not be entirely completed, owing to a combination of adverse weather conditions, insufficient financial resources, and lack of suitable equipment. Certain items had therefore to be postponed. In the main, however, the projected work was successfully done, and covered a very wide range.

Forest fire patrols were done in British Columbia, Alberta, and Manitoba. Photographic surveys of water power sites, etc., for the Water Power Department were made in British Columbia, Ontario, Quebec and Nova Scotia. Photographic surveys of a topographical nature were made in British Columbia, Alberta, Manitoba and Nova Scotia.

Fishery protection patrols were undertaken for the Marine and Fisheries Department of the Dominion Government in the neighbourhood of Prince Rupert, B.C., and were exceedingly effective in suppressing illegal fishing. In the same province aircraft were successfully employed in the detection of drug and liquor smugglers.

In British Columbia very valuable work was performed for the Department of Agriculture in investigating White Pine Blister Rust. This is a disease which in one stage seriously affects pine trees, and in another is harboured by the currant or gooseberry. It is possible to recognise infected pine trees only during a very short period in Spring, and it would not have been possible to discover the extent of such infection in one season by any method of ground inspection. The use of aircraft enabled enormous areas to be examined within the few weeks available at a very small expense, and made it possible to determine the limit of the infected area in a time which could not otherwise have been equalled.

In addition it was determined by the use of aircraft that the spores of this disease were to be found at heights of at least 5,000 ft., and that consequently the infection could be carried many hundreds of miles by the wind.

For the Department of Indian Affairs flights were made in Manitoba to facilitate the payment of treaty money, the making of medical examinations of Indians and for general administrative business of the Department. Some of these flights were over absolutely unmapped country, and resulted in a very great saving both of time and of money to the Department concerned.

1924.

During 1924 further progress along similar lines was made. One of the most notable events of the year was the formation

by the Provincial Government of Ontario of its own Air Service for Civil purposes. To this end it purchased thirteen HS2-L flying-boats, engaged pilots and mechanics, established air bases at Sudbury and Sioux Lookout, and built slipways, sheds, workshops and camps for personnel at these places.

Flying by this Service during the season (June to October) amounted to 2,595 hours, of which 1,547 hours were on forest protection work, 410 hours on photographic and sketching, 85 hours on transportation and 66 hours on instruction of pilots.

The Province of Quebec continued the contract with the Dominion Aerial Exploration Co. for the operation of the Roberval station, and three additional machines were put into service.

The Laurentide Air Services, which in 1923 carried on much forestry work for the Provincial Government of Quebec, sold some considerable part of its equipment to that Government for the use of the Provincial Air Service. With the remaining equipment, reinforced by a few new purchases, the Company operated a mail passenger and freight service between Haileybury, Ontario and the Rouyn Goldfield. This was the first regular air line operated in Canada. It was run by flying-boats from the beginning of June until the end of November, when the lakes in the interior froze up, and was thereafter continued for some time using land machines fitted with skis.

This service was quite successful until the development of surface transport facilities made it unnecessary. During its operations it carried over 1,000 passengers, 78,000 lbs. of freight and 15,000 lbs. of mails and telegrams.

In addition the Laurentide Air Services fulfilled contracts for the transport of a party to pay treaty money for the Department of Indian Affairs, and a number of contracts for forest sketching, photographic flying, etc. Their total flying for the season amounted to 933 hours.

Fairchild Aerial Surveys (of Canada) Ltd. found it necessary to increase their flying equipment, and during this year produced mosaic maps of 1,425 sq. miles, including surveys in connection with water-power schemes, railway construction and for forestry purposes. They were able successfully to operate right through the Winter, and made successful photographic flights at temperatures of 10° below zero.

In this same year Civil operations by the R.C.A.F. were continued on lines very similar to those of the previous year. Another Inter-Departmental Conference was held in the Spring and a definite programme for the season was laid down.

Again the programme was in the main completed. A few schemes had to be postponed, but on the other hand some work not foreseen became necessary and was done. A considerable improvement in the equipment available, caused by the delivery of new aircraft, greatly increased the possible volume of work. Taken over all, the work in the various Provinces was of very much the same nature as in the previous year, generally on a somewhat larger scale.

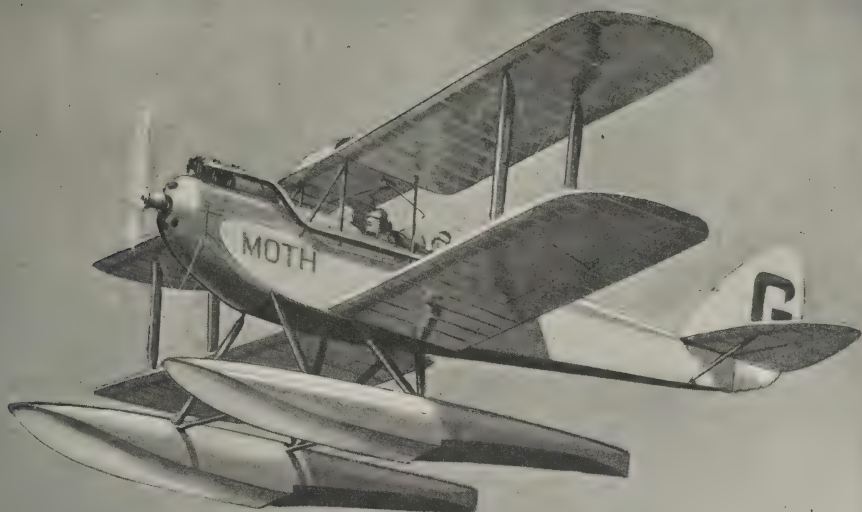


ONTARIO'S AIR SERVICE.—The Headquarters, hangar and slipway of the Ontario Provincial Air Service at Sault Ste. Marie, Ontario.

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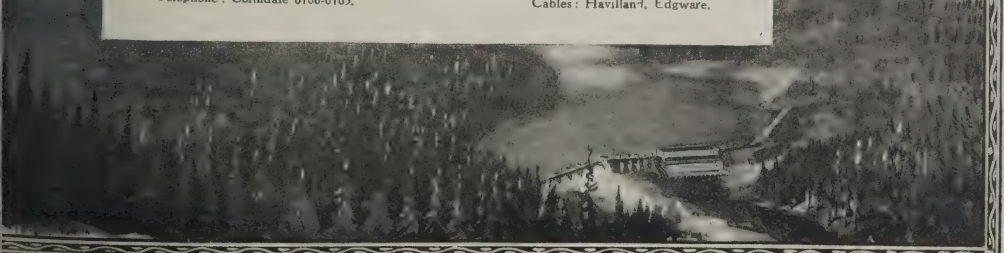
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Forestry work, either for fire protection and fighting or for the cataloguing of timber types, was the largest single item of the year, and accounted for 1,366 hours of flying.

Aerial Survey was the next most important item. This took 508 hours, and resulted in the covering of 40,000 sq. miles by either vertical or oblique photography.

By this time the Survey Services of the Dominion had satisfied themselves that by the use of aerial survey they could reduce their ground services by more than a half, and at the same time could produce more accurate and more complete maps in much less time than was possible by older methods.

Fishery protection on the coast of British Columbia took 150 hours and was done with ancient American HS-2-L flying-boats to the satisfaction of the Fishery Officials, despite very trying weather conditions.

Over and above these three major branches of work many miscellaneous transport and other services similar to those already described for the previous year were rendered to various Government Departments.

1925.

The story of 1925 greatly resembles that of previous years, except in one particular. Owing to the formation of the Ontario Provincial Government Air Service in 1924, Laurentide Air Services Ltd. were deprived of the extensive contracts for forestry flying which they had fulfilled in 1923. During 1924 the firm carried on in business, helped out by the transport service to the Rouyn Goldfields. But with the drop in traffic to these fields, after the opening of ground communications, the company found it impossible to continue to operate, so it closed down. As a result there was a fall in the total amount of flying by civilian enterprises in the year.

To offset this a new firm—Brock and Weymouth of Canada Ltd.—entered the field. This is an offshoot of an American firm which had specialised in survey by vertical stereoscopic photography, and had been very successful in the U.S. in dealing with railway, power-line and town-planning problems.

This firm made two important surveys during the year, one for the Canadian National Railways for the location of a railway line to the Rouyn Goldfields, and a second in connection with water-power developments on the Saguenay. The feature of this firm's methods is that it permits of rapid and accurate production of contoured maps.

The Dominion Aerial Exploration Company continued to fly under contract with the Provincial Government of Ontario for forestry purposes. In addition they carried out important exploratory flights, and some large forest-type mapping operations for lumber companies.

Fairchild Aerial Surveys Co. (of Canada) Ltd., continued to increase their scale of operations. In this year, 1925, they made forest-type maps in Quebec and the Maritime Provinces covering 3,000 sq. miles, and covered 1,400 sq. miles by photography, both vertical and oblique, for engineering works, advertising and pictorial purposes. And for the Dominion

Government they took vertical photographs covering 400 sq. miles for the preparation of a map.

The Ontario Provincial Air Service established a new main base at Saulte Ste. Marie, equipped with permanent repair works, and added to their original operating bases at Sudbury and Sioux Lookout a number of sub-bases. Their flying equipment was increased to seventeen HS-2-Ls and two Loening flying-boats.

During the Summer months this service flew 2,700 hours, made detailed type-maps of 6,000 square miles of forest, and took oblique photographs covering 500 sq. miles.

In addition to forestry work the Service carried out transport flights for other branches of the Provincial Government, and for the Dominion Department of Indian Affairs.

On one occasion five aircraft were put at the disposal of the Provincial Department of Mines to assist in the transport of supplies needed to continue the development during the Winter of a newly-discovered mineral field some 125 miles North of the trans-Continental railway. News of this discovery was received too late for supplies to be sent up by canoe before the waterways froze up and some 15 tons of supplies were taken up by air, thus making it possible to carry on during the Winter.

The R.C.A.F. operations for this year followed the precedents of the preceding years. Forestry work was the largest of their undertakings, despite the fact that much wet weather greatly reduced the forest-fire hazard and consequently the need for forest patrols and fire-fighting expeditions.

Photographic survey work was interfered with by the afore-said wet weather and the consequent haze, nevertheless 48,000 sq. miles were covered in this way.

Fishery Protection patrols were on a much more extensive scale than heretofore, and were eminently successful. A number of breaches of the regulations which would scarcely have been discovered otherwise, were detected, and the offenders prosecuted. As in previous years a great deal of miscellaneous transport and exploratory flying was done.

1926.

During 1926 a still further increase in the use of aircraft for commercial and civil purposes occurred in Canada.

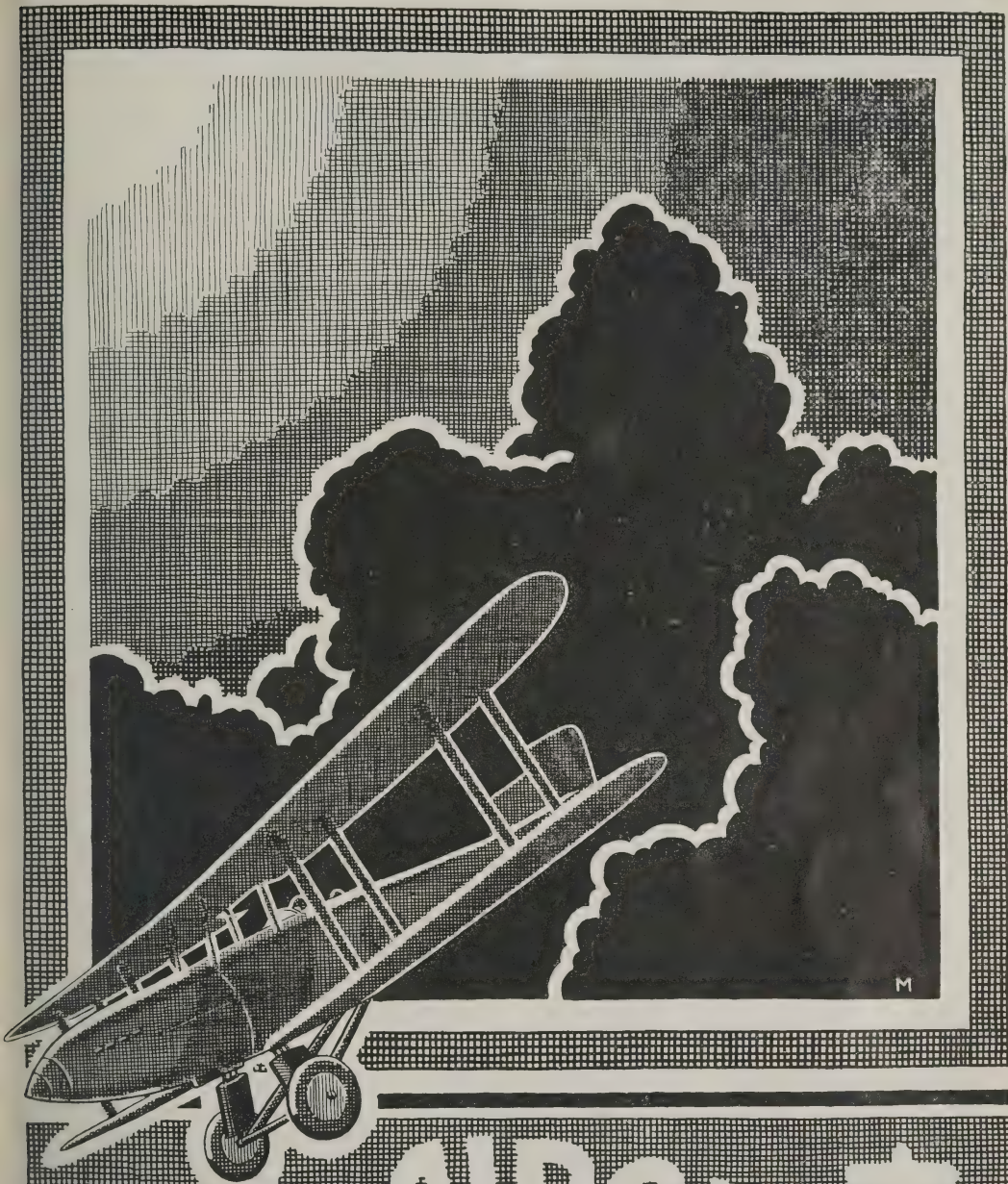
A new firm known as the Compagnie Aérienne Franco-Canadienne started aerial survey operations. Their equipment comprised two F.B.A. flying-boats, and in the course of 201 hours' flying this new concern covered 3,800 miles by photography. This work was carried out in the Gaspé Peninsula under contract with the Quebec Provincial Government, by French pilots using French matériel.

The Dominion Aerial Exploration Co. ceased to exist and its business was taken over by a new company, Canadian Airways Ltd., with Major Jugley (founder of the Dominion Aerial Exploration Co.) as Managing Director.

The contract for the operation of Roberval Air Station on behalf of the Quebec Provincial Government was entrusted to the new firm, who were able to operate continuously from the first clearance of ice at the end of May till the freeze-up



CANADIAN PREFERENCE.—The Huff-Daland Petrel 200 h.p. Wright E.4 engine) which has been in the service of Fairchild Aerial Surveys (of Canada) Ltd. for the past four years. Standing at the side of the float are Mr. K. F. Saunders, D.S.C., who flew for a long time with Lt.-Col. G. L. P. Henderson in Sweden, and Mr. H. M. Pasmore, two of the Fairchild pilots.



FAIREY AIRCRAFT

The Fairey Aviation Company Ltd
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in October. This work included forest exploration and inventory over a very wide area.

In addition to this work for the Provincial Government the firm carried out transport work for exploratory parties, which permitted them to reach their working base by a few hours of travel over country in which canoe transport would have occupied some weeks.

One special operation of an unusual type by this firm deserves mention. One of their flying-boats flew out to meet the Mail Steamer *Empress of Scotland* off the North-West coast of Anticosti Island in the Gulf of St. Lawrence. Here it alighted and picked up a package which was dropped overboard by the steamer, and flew with it to Rimouski—about 250 miles distant on the St. Lawrence River. Here the package was embarked on an aeroplane and flown to New York, where it was delivered twelve hours before the steamer reached Quebec.

Fairchild Aerial Surveys (of Canada) Ltd. added a Vickers Vedette flying-boat to their equipment during this year, and as before were successful in operating throughout the Winter Season.

Their work comprised surveys for engineering schemes, including one for a power-transmission line from Toronto to Ottawa for the Ontario Hydro-Electric Power Commission, forest type-mapping, and pictorial and advertising photography. Their total for the year was 432 hours' flying in the course of which 8,536 sq. miles were photographed in 103 hours and sketching was done over more than 14,000 sq. miles of forest.

The Fairchild Air Transport Co. Ltd., a new concern of 1926, is associated with the Fairchild Aerial Surveys Co., and was formed to provide reliable air transport facilities in Canada. Before this concern came into existence the Elliott-Fairchild Air Service was formed, and in February, 1926, operated a service between the railway and the gold-mining area at Red Lake. This concern dissolved and gave way to the one now mentioned.

Between May 26 and October 31 the new firm ran a bi-weekly service between Haileybury and Rouyn, using a seven-seater Aeromarine flying-boat. Freight and supplies of all kinds, mails, and passengers ranging from children of three to men of 80 were conveyed successfully. The total results of the season's work were 576 passengers, 24,000 lbs. of freight and 4,000 letters transported.

Another concern which began to operate aircraft in 1926 was the Northern Syndicate Ltd.—a prospecting company which purchased the Vickers Viking previously owned by Laurentide Air Services and engaged Mr. C. S. Caldwell as pilot and Mr. Vachon as engineer to make an expedition into the Great Slave Lake District (N.W. Territory). This involved crossing country over which nothing had previously flown, and for which the only available maps proved wildly inaccurate.

The method of operation adopted was for the aircraft to fly out, select a suitable site, and dump stores of petrol and food. It would then return, bring along the prospecting party who would examine the neighbourhood on foot. Whilst they were so occupied the aircraft refuelled from the dump, flew on and dumped food at a new base, and then transported the prospectors there. By this process an immense saving of time was effected.

The latest information is that the substance for which the prospectors were searching was proved not to be there, and so the exploration has been abandoned. But the use of an

aeroplane proved in one season what would have taken three or four years to prove by land and water, and so time and money were saved.

Patricia Airways and Exploration Ltd. was formed in Spring, 1926, to operate a passenger and mail service between Sioux Lookout and Red and Woman Lakes. Operating one Curtiss Lark seaplane and one HS2-L flying-boat this company flew 317 hours, and carried 259 passengers, 14,000 lbs. of freight and 3,000 lbs. of mail during the season.

As an illustration of the saving of time possible by air travel in Canada it is recorded that a mining engineer on the way from Winnipeg to New York left his seat on the trans-Continental train at Minaki, Ont., was taken 120 miles North of the railway where he spent one and a-half hours inspecting a claim, and was flown back to Sioux Lookout where he rejoined the train which he had left four-and-a-half hours earlier.

Pacific Airways Ltd., founded at Vancouver by that famous War pilot, Major D. R. MacLaren, operating an HS2-L flying-boat, did a large amount of freight and passenger carrying, exhibition and advertising, forest sketching, exploration and reconnaissance, vertical and oblique photography. During the Federal Elections they distributed ballots to remote points and carried candidates on speaking tours.

Western Canada Airways was formed in November, 1926, with head offices in Winnipeg. The firm acquired a Fokker Universal five-seater monoplane in New York in the middle of December, and flew it to the operating base at Sioux where it arrived on Dec. 25. By Dec. 31, 31 hours of flying had been done, carrying 18 passengers and 850 lbs. of freight.

In addition to these firms a number of undertakings have carried on joy-rides, taxiwork and training in Canada both during 1926 and in the preceding years.

Civil work undertaken by the R.C.A.F. followed the lines of the previous years during 1926. Forest fire-patrols and fire-fighting work naturally depend upon weather conditions. There is little fire risk in wet seasons and fire patrols are therefore not required. The amount of flying required for this purpose during the Summer of 1926 was fairly large as it was a dry season, and fires were frequent.

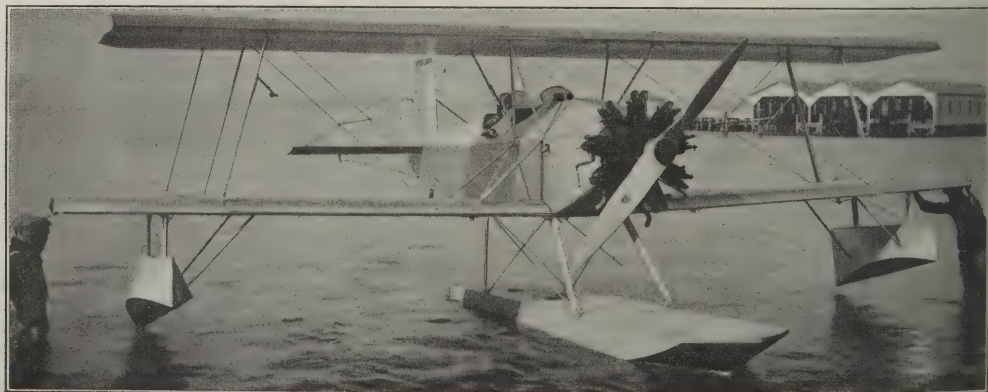
This seems particularly to have been the case in the Western Alberta district, where some 261 hours were flown, and in Manitoba where 856 hours of forest-patrol were flown.

Photographic survey work on a much extended scale also marked this year. 3,330 sq. miles were photographed for the Topographical Survey Dept. in Alberta and no less than 50,275 sq. miles in Manitoba. This Manitoban work was mainly in the districts North and East of Lake Winnipeg, where the existing maps are the result of exploratory traverses of the main rivers and lakes, giving little or no detail, and for the first time make it possible to map this vast area with real accuracy.

Patrols for the Customs Department, and for fishery protection were continued on the coasts of British Columbia, and experimental flying for the investigation of the White Pine Blister Rust and of the Wheat Rust disease was continued with very useful results.

SUMMARY.

It is not easy to give any very clear idea in words of the total volume of useful civil flying which has been done in Canada since 1919. Some statistical tables which are hereafter printed will however show that there has been a very



CANADIAN PREFERENCE.—A Curtiss Lark seaplane (200 h.p. Wright Whirlwind engine) used by the Patricia Airways and Exploration Ltd., for general passenger and goods transport.

The Finest Aero Engine in the World

THE first cost of the Napier Aero Engine, because of the extreme care, high quality workmanship and material used in its manufacture, may be greater than some engines, but this is more than counterbalanced by its efficiency, reliability and economy in maintenance.

Some Napier engines in use by the Royal Air Force have covered over 40,000 miles (400 hours' flying) before being taken down for examination.

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steady increase in flying, and as there is no artificial encouragement in the shape of subsidies in Canada, it is obvious that Civil Aviation in Canada is in the true sense of the term Commercial.

The great forests of Canada are among the most important of the Dominion's national resources, and the suppression of wide-spread forest fires is an undertaking of the very greatest public importance. It is reported from Western Alberta that during the six years since aerial fire-patrols have been available no forest fire originating within that area has passed beyond the control of the Forest rangers, thanks to the prompt notice given of the beginning of outbreaks, and the rapidity with which men and fire-fighting gear could be transported to the scene. This rather than the number of hours flown is the true measure of the value of forest patrols.

The volume of useful work accomplished in aerial surveying in Canada can be expressed in figures. Since 1919 approximately 250,000 sq. miles have been photographed from the air, and about one half of this was the work of 1925 and 1926.

The area of England and Wales is about 50,000 sq. miles. So, six years' work in Canada has surveyed five times the area of England, and in two years an area two-and-a-half times that of England and Wales has been photographed. That is to say it is possible to make a photographic map of all England in a year.

Most of the area so photographed was previously only mapped in the most sketchy and inaccurate manner, and the accurate topographical information which it has been possible to obtain by aerial methods has been of the greatest value in the development of mineral deposits, and in making communication easier.

Regular air transport has not developed to any great extent in Canada. This is not altogether surprising. Canada is very sparsely populated. Its total area is about 3,500,000 sq. miles, and its population about 8,800,000. Of this total a population of 5,300,000 is to be found in the 1,000,000 odd square miles of Ontario and Quebec, leaving 3,500,000 people spread over the remaining 2,500,000 sq. miles. Actually practically the whole population is concentrated within a narrow belt alongside the Southern boundary of the Dominion.

This belt is served by two great main line railways running East and West across the Dominion, and by a fairly well-developed branch railway and road system.

North of the populated belt the country is practically uninhabited and to a very large extent is devoid of any communications except those afforded by waterways.

Air surveys are making this relatively unknown district known, and showing the possibilities of agricultural and mineral development. Where such developments have occurred rapidly, as in the case of the Rouyn Goldfields, air transport has served a very useful purpose, pending the development of improved surface transport. Then traffic has diminished and the operators have had to seek for other fields of activity. There is a sufficiency of territory being opened for development to give such temporary transport services a wide field of usefulness.

There are however signs that the day of regular air lines, at least for mail-carrying purposes, in Canada, is now close at hand. Canada may reasonably be expected to follow the American example, so no attempt to subsidise passenger services is likely to occur.—W. H. S.

AIR TRANSPORT OPENINGS.

Incorporated with a capital of \$100,000, a firm for the operating of commercial aircraft under the title of the "Dominion Airways Limited" has been formed in Vancouver, British Columbia. Mr. A. L. Dobbin, is the president and general manager, and Capt. W. E. C. Dobbin, who formerly belonged to the R.C.A.F. and who has had much experience of commercial flying with concerns in Eastern Canada, is to act as treasurer and director of operations.

The purpose of the company is to establish an aerial service for transportation of passengers, an express freight service, and to undertake any survey or photography projects which may come its way.

The first machine the firm will use is to be a flying-boat of a new design prepared by the Boeing Airplane Company, of Seattle, Washington. The engine will probably be a 200 h.p. Wright "Whirlwind," and the machine is to be built in Vancouver.

When the company was first mooted the promoters were in the market to purchase the machine that would best meet their needs, and specifications and advertising literature were invited from British, American and Canadian firms. None of the firms on the American continent could undertake to make deliveries in time, and it was finally decided to construct the flying-boat under the Boeing patents in Vancouver.

One of the directors was asked why a British machine had not been purchased.

His reply was that although he was certain that the British machines were excellent in every way, the greatest obstacle to business was the fact that there was no agent on the spot to explain the firm's products to them, and the printed details received "would have taken hours to figure out."

Another obstacle was the matter of spare parts. Engine parts could be flown from any part of the American Continent in a short time whereas a month or more would elapse before anything could be done when dealing with firms in Europe. In his opinion the British aeroplane was in exactly the same plight as the British light car, and until there were agencies, repair and spare part depots, and agents on the spot, the firms involved could not hope to do business with Canada.

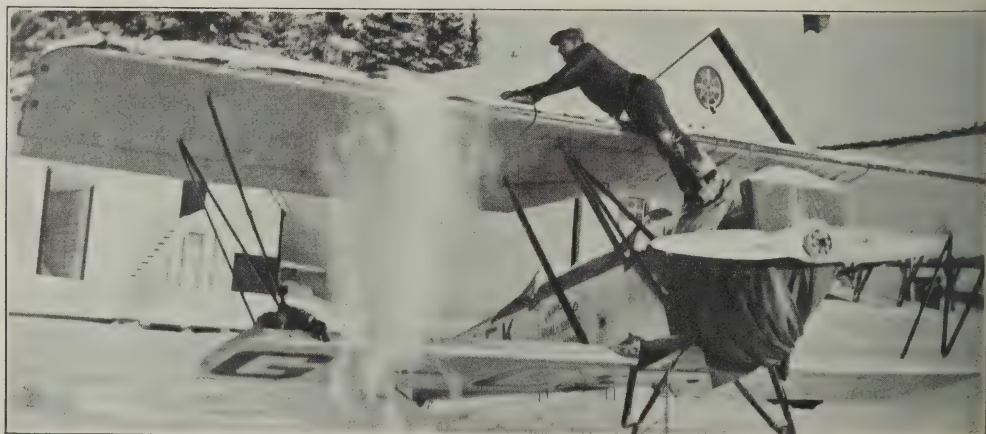
Since this report was published, as mentioned elsewhere, the De Havilland Aircraft Co. Ltd. are arranging for service depots and spare parts stocks for Moths in Canada.

It is reported, on the authority of the Office of the High Commissioner for Canada, that a private company, Canadian Trans-Continental Airways Co., has recently been registered in Quebec.

This firm is said to contemplate the operation of an extensive regular service of flying-boats, which, to begin with, will connect Chicoutimi with Toronto, calling at Rivière du Loup, Quebec, Three Rivers, Montreal, and Ottawa on the way.

Chicoutimi is about 100 miles due North of Quebec, and on the Saguenay River about 70 from its mouth on the Gulf of St. Lawrence. The total distance of the proposed route is about 500 miles, and the service should be of great value in connecting the various ports of call with Quebec which is the Eastern port of call of the trans-Atlantic steamers.

It is said that flying equipment of European manufacture is to be used.



SNOW-SHOOTING.—The Huff-Daland Petrel owned by the Fairchild Aerial Surveys (of Canada) Ltd. being dusted down for the day's work in the Gaspé Peninsula, March, 1926.

CIVIL FLYING BY THE R.C.A.F., 1923-1926.

NATURE OF WORK.	1923 " No. of Flights.	1924 Hours.	1925 Hours.	1926 Hours.
Forest reconnaissance and fire protection ...	371	1,366	1,347	1,200 app.
Aerial Survey ...	12	508	671	—
Miscellaneous Civil Flying ...	444	367	420	—
Total Civil Flying ...	1,422 hrs.	2,173 hrs.	2,416 hrs.	2,275 hrs.
Area Photographed. Vertical ...	—	—	9,700 sq. m.	8,790 sq. m.
" " " Oblique ...	—	40,000 sq. m.	38,000 sq. m.	50,230 sq. m.

* NOTE.—Figures for hours flown 1923 not available for each duty.

COMMERCIAL FLYING, 1922/1926.

	1922.	1923.	1924.	1925.	1926 †
Total No. of Firms operating aircraft ...	23	15	8	8	13
Total No. of Licenced Aeroplanes ...	46	45	10	11	—
" " " " Seaplanes ...	14	24	22	28	—
" " " " Aircraft ...	60	69	32	39	44
" " " " Aerodromes ...	21	17	12	13	—
" " " " Seaplane Stations ...	8	13	12	21	—
Total No. of Licenced Air Stations, Land and Sea ...	29	30	24	34	34
Machine hours flown (Land and Seaplanes) ...	2,541	2,830	4,389	4,091	5,860
Machine miles flown (Land machines) ...	106,353	47,505	21,700	29,065	—
Machine miles flown (Seaplanes)* ...	78,878	140,603	273,078	226,761	—
Machine miles total ...	185,111	188,098	294,778	255,826	—
Passenger miles ...	184,928	203,500	500,175	446,648	631,715
Total freight and mail lbs.† ...	14,681	17,600	78,606	393,300	725,000
Total flying accidents ...	7	5	1	0	—
Total fatal accidents ...	1	2	1	0	—

* Includes amphibian mileage.

† Includes fire fighting gear.

‡ Complete returns for 1926 not yet available.

Several interesting features are to be found in this table. First is the fall in the number of firms operating aircraft from 23 in 1922 to 8 in 1924. This was due to a wave of "joy-riding" and similar undertakings which started after the War and gradually died out, leaving in 1924 only a small number of soundly-based firms mostly engaged on useful work such as photography and forestry work.

This wave of "joy-riding" also accounts for the drop in the number of licenced aeroplanes from 46 in 1922 to 10 in 1924,—as joy-riding was done mainly on Avros and JN-4's.

Along with the fall in the number of aeroplanes there is to be remarked a fairly steady increase in the number of seaplanes. This is because the greater part of the forest patrol and survey work in Canada is done over country in which rivers and lakes abound, but which is mainly unsuited for aeroplanes.

The fall in land machine times and mileage, and the increase in the seaplane figures is also caused by the decline of joy-riding and exhibition work and the steady growth of forestry and survey work.

The enormous increase in the total weight of freight and mails carried from 13,681 lbs. in 1922 to 725,000 lbs. in 1926 is due largely to the growing transport of fire-fighting appliances by air.

When the nature of much of the country covered by aircraft in Canada is considered, the rarity of serious accidents is remarkable. In 1922, 23, 24 and 25, only eight persons were killed and ten injured, and of these five deaths occurred in 1923 and only two in 1924 and 1925.

Considering that there are relatively few modern aircraft in Canada and that a large proportion of the flying in this period was on machines built either during the War 1914-18, or at any rate prior to 1920, these results are truly remarkable. To a large extent this may be attributed to the inherent safety of seaplanes, but the figures seem to indicate an astonishing degree of skill and ability on the part of pilots and mechanics alike.

ONTARIO PROVINCIAL AIR SERVICE.

	1924.	1925.	1926.
Total hours flown ...	2,595	2,739	2,930
Total miles flown ...	170,000	165,853	230,991
Total load carried, lbs. ...	—	553,540	659,413
Total passengers carried ...	—	1,214	1,636
Hours flown for: Fire detection ...	1,547	1,440	1,957
" " " Fire suppression ...	—	155	640
" " " Photography and sketching ...	—	410	267
" " " Transportation ...	—	85	62
" " " Ferrying to distant bases ...	—	330	234
" " " Instruction, pilots and observers ...	—	66	55
No. of forest patrols ordered ...	—	—	555
" " " not completed ...	—	—	15
Per cent. efficiency of patrols ...	—	—	97.3

CANADIAN AERODROMES AND SEAPLANE STATIONS. 1926.

R.C.A.F. STATIONS.

Ottawa, Seaplane Station.
Camp Borden, Ontario, Training Station, Land machines.
Vancouver, B.C., Seaplane Station.
Victoria Beach, Manitoba, Seaplane Station, operating in Summer only.
Norway House, Manitoba, Seaplane Station, operating in Summer only.
Cormorant Lake, Manitoba, Seaplane Station, operating in Summer only.
High River, Alberta, Aerodrome.
Dartmouth, nr. Halifax, Nova Scotia, Seaplane Station.
(Note.—Except Camp Borden, the R.C.A.F. Service Training Station, all the R.C.A.F. stations engage in flying for Civil purposes.)

CIVIL AERODROMES AND SEAPLANE STATIONS.

Montreal, Quebec, Public Customs Station, Seaplane Station, Canadian Vickers Ltd.
Chicoutimi, Quebec, Commercial, Seaplane Station, Dominion Aerial Exploration Co. Ltd.
Roberval, Quebec, Commercial, Seaplane Station, Dominion Aerial Exploration Co. Ltd.
Lac la Tortue, Quebec, Commercial, Seaplane Station, Fairchild Aerial Surveys (of Canada) Ltd.
Three Rivers, Quebec, Public, Seaplane Station, Laurentide Air Services Ltd.
Lake Osisko, Quebec, Commercial, Seaplane Station, Northern Air Services Ltd., Haileybury.
Leaside, Ontario, Public Customs Station, Aerodrome, Ericson Aircraft Ltd., Toronto.
Hamilton, Ontario, Commercial, Aerodrome, J. V. Elliot, Hamilton.
Ford, Ontario, Commercial, Aerodrome, Bert McConnel, Ford, Ont.
Burlington Junction, Ontario, Commercial Aerodrome, J. V. Elliot, Hamilton, Ont.
Riverside, Ontario, Commercial, Aerodrome, O. H. Strickland, Sandwich, Ont.
Trout Lake, Ontario, Commercial, Seaplane Station, Laurentide Air Services Ltd.
Manicouagan River, Ontario, Commercial, Seaplane Station, Ontario Paper Co. Ltd.
Cooks Bay, nr. Sudbury, Provincial, Seaplane Station, Ontario Provincial Air Service.
Timagami, Ontario, Provincial, Seaplane Station, Ontario Provincial Air Service.
Remi, Ontario, Provincial, Seaplane Station, Ontario Provincial Air Service.
Oba Lake, Ontario, Provincial, Seaplane Station, Ontario Provincial Air Service.
Orient Bay, Ontario, Provincial, Seaplane Station, Ontario Provincial Air Service.
Fort Frances, Ontario, Provincial, Seaplane Station, Ontario Provincial Air Service.
Sioux Look-out, Ont., Provincial, Seaplane Station, Ontario Provincial Air Service.
Sault Ste. Marie, Ont., Provincial, Seaplane Station, Ontario Provincial Air Service.
Minaki, Ontario, Provincial, Seaplane Station, Ontario Provincial Air Service.
Haileybury, Ontario, Public, Seaplane Station, Town of Haileybury.
Winnipeg, Manitoba, Commercial, Aerodrome, Canadian Aircraft Co.
Brandon, Manitoba, Commercial Aerodrome, J. E. Smith.
Virden, Manitoba, Public, Customs Station, Aerodrome, W. A. Bridgett and H. N. Thompson.
Lethbridge, Alberta, Commercial, Aerodrome, Lethbridge Aircraft Co. Ltd.
Edmonton, Alberta, Public, Aerodrome, City of Edmonton.
Moose Jaw, Saskatchewan, Public Customs Station, Aerodrome, City of Moose Jaw.
Regina, Sask., Commercial, Aerodrome, Aerial Service Co. Ltd., Regina.
Saskatoon, Sask., Commercial, Aerodrome, O. H. Clements, Saskatoon.
Yorkton, Sask., Commercial, Aerodrome, D. Brown, Yorkton.
Fredericton, New Brunswick, Public, Customs Station, Seaplane Station, City of Fredericton.

THE CANADIAN AIRCRAFT INDUSTRY.



CANADIAN-BORN.—The Vickers Vedette (200 h.p. Armstrong-Siddeley Lynx engine) the first Canadian-designed product of Canadian Vickers Ltd.

The earliest aircraft experiments carried out in Canada were those made by Dr. Graham Bell, who constructed a series of gliders in his workshops at Baddeck, Nova Scotia. These were based on the results of his experimental work on cellular kites and one or two of them were flown successfully from the frozen surfaces of lakes during the winter season.

Later, Messrs. McCurdy and Baldwin followed up this work with several experimental aircraft. During the Winter of 1908-09 they flew, over the frozen bay at Baddeck, more than 1,000 miles on a biplane of the "June Bug" type, which was built by "The Aerial Experiment Association,"—which was composed of Dr. Graham Bell, and Messrs. Glenn Curtiss, McCurdy, and Baldwin.

In 1909 the Department of Militia and Defence became interested in their work and, by the efforts of Lieut.-Col. G. S. Maunsell, R.C.E., then Director of Engineer Services, encouragement was given to these early efforts in so far as to arrange a series of flights in co-operation with the Militia.

Messrs. McCurdy and Baldwin were provided with accommodation at the Petawawa Camp, but unfortunately the ground was too rough for landing and after several trial runs the machine crashed on landing after its first flight. With this failure experimental work in aircraft in Canada lapsed.

The first organised aircraft industry grew out of the war demand for aircraft, and in 1916 the Canadian Aircraft Company was established in Toronto by the Imperial Munitions Board. This company built large numbers of Curtiss J.N. training biplanes, this particular version of the "Jenny" being nicknamed the "Canuck," as well as a certain number of Avros, Curtiss HS2-L flying-boats and F5-L flying-boats, some of the last for the United States Government.

The Polson Ironworks Co., of Toronto, built some experimental steel aeroplanes in 1916, but, so far as one can learn, none of these machines ever flew.

With the end of the War, 1914-18, the demand for aircraft ceased entirely, the Canadian Aircraft Company was closed down and the organisation disbanded.

From 1919 to 1923 aviation in Canada depended almost entirely on the use of surplus war material, but in the latter year the re-equipment of the Royal Canadian Air Force was begun.

CANADIAN VICKERS LTD.

In 1923 the R.C.A.F. decided to place contracts for eight single-engined amphibian flying-boats, stipulating that the machines should be constructed in Canada.

Vickers Ltd., through their Canadian branch, Canadian Vickers Ltd., were the successful tenderers with the Viking (450 h.p. Napier Lion engine). Owing to the urgency of the delivery required it was necessary to build two Vikings in England.

In the meantime Mr. Rex Pierson, the chief designer, and Mr. Maxwell Muller, the Superintendent of the Weybridge Works of Vickers Ltd., went to Canada to organise the construction of the Canadian-built Vikings at the Maisonneuve Works of Canadian Vickers Ltd., thus laying the foundations of what is now the largest and most important aircraft constructing plant in the British Empire outside Great Britain.

The company was well suited to the manufacture of aircraft of all types. Its engineering resources, including well equipped machine shops, drawing offices, docking facilities, including two large covered and heated slipways, and the ample sheltered water of the St. Lawrence River, together with an experienced engineering personnel, formed a very

useful foundation for the establishment of an aircraft department.

Following on the Viking order, a special design staff under Mr. W. T. Reid, late of the Bristol Aeroplane Co. Ltd., was engaged and a portion of the works was set aside solely for the construction of aircraft and accessories.

In 1924 the works were kept busy throughout the year. The principal contracts undertaken were for the Department of National Defence and included the building of two additional Vikings, five single-seat Avro-Viper fire-patrol aircraft, the reconditioning of five dual-control Avro 504s and the manufacture of a large number of spare parts, airscrews, skis, floats, etc., both for the R.C.A.F. and various private aviation companies.

In addition, in 1924 the design and construction of the first Canadian aeroplane was undertaken and very successfully completed. This machine, known as the Vedette, was tested in October of that year. This machine is referred to and fully described in subsequent pages.

In 1925 new construction included the Avro two-seat single-float seaplanes and four Vedette three-seat photographic and fire-patrol flying-boats.

The second Canadian Vickers-designed flying-boat was produced during this year. This boat, known as the Varuna, was a twin-engined forest-patrol flying-boat and like the Vedette was very successful.

During 1926 repeat orders from the R.C.A.F. were received for both the Vedette and the Varuna, and four new aircraft designs were prepared, three to the order of the Canadian Air Board and one as a free lance design. These, together with the Vedette and Varuna, are described hereafter.

THE VEDETTE.

The Vickers Vedette is a small three-seat biplane flying-boat fitted with one 180 h.p. Armstrong-Siddeley Lynx engine. It was designed primarily for forest fire detection, but has proved most successful on photographic survey work.

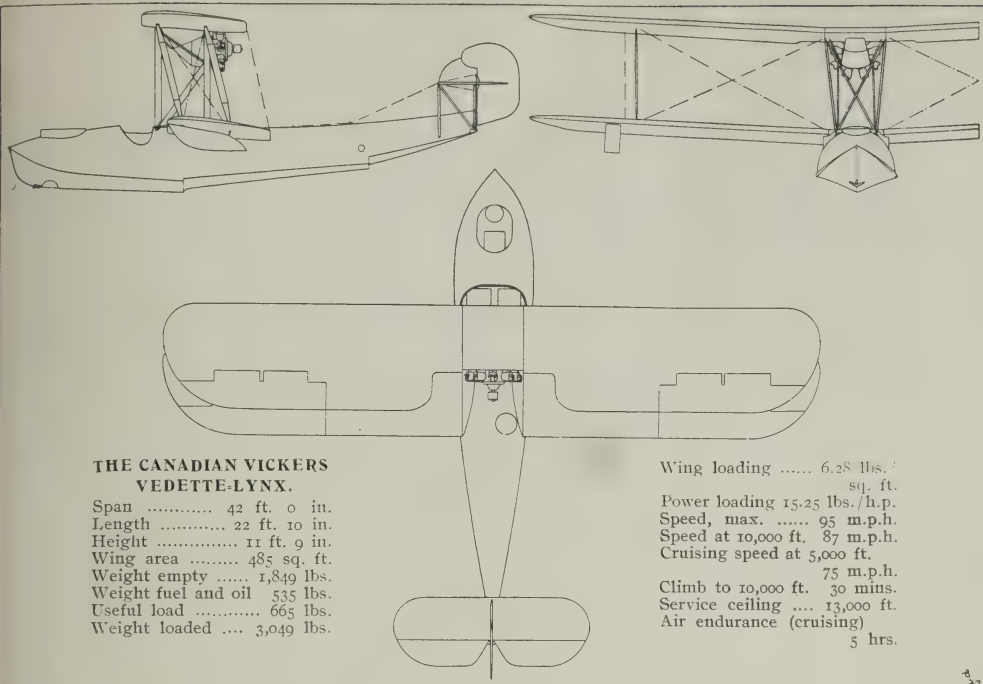
It was originally fitted with a 270 h.p. Rolls-Royce Falcon engine. This was later replaced by a 200 h.p. Wright Whirlwind, a radial air-cooled engine and this has again been replaced by the 180 h.p. Siddeley Lynx, which engine is now fitted as standard.

The hull construction is semi-flexible and of the mono-coque type, the ribs being hoop-shaped and fixed rigidly to the keel. Cedar planking with copper rivetting is used throughout, the top planking being 3-16 in. cedar and the bottom 1/4 in. to 3-16 in. from front to rear. The whole hull is covered with two layers of canvas.

This method of construction has proved to be very satisfactory, and the hull of the first boat after 100 hours' flying on operational work, during which it has remained in the water for weeks at a time, has remained absolutely dry and free from soakage.

The single-bay wings are of wood and fabric construction. The engine is carried under the centre-section and drives a pusher airscrew. The centre section bracing is unusual in that the rear truss which carries the engine is in the form of an "X." Ailerons of the "Frise" type are fitted to all four planes.

The pilot's cockpit is in advance of the wings and accommodates the pilot on the starboard side and a seat for a mechanic or passenger. In the nose of the hull is a large cockpit for the observer or photographer. The main petrol tank is situated in the hull behind the pilot's cockpit. A



gravity fuel tank and oil tank are supported under the centre section and form a fairing to the engine.

The tail unit consists of a normal monoplane tail and elevator, fin and balanced rudder. Adjustable incidence control is provided, operated through a lever and quadrant in the pilot's cockpit.

The outstanding features of the Vedette are its quick get-off and its extreme manoeuvrability under all conditions. With full load on calm water the take-off time is approximately 5 seconds. Taxying can be done with ease up, down or across a fresh breeze without the need for any of the crew to leave the cockpits.

THE VARUNA.

The Varuna is a medium-sized twin-engined biplane flying-boat designed primarily for forest fire suppression.

The requirements for such work are a capacity for carrying alternatively a load of men, a load of fire-fighting equipment such as a small petrol-driven water-pump, picks and shovels, etc., or a combination of men and equipment. And an essential quality for an aircraft designed for the purpose is a short getting-off run. The shorter the run the greater the number of lakes and rivers accessible, and consequently the possibilities of close approach by air to fires are enhanced.

The hull is of the semi-flexible type and consists of cedar planking laid on fore-and-aft spruce stringers supported by

rock elm ribs. The top consists of fore-and-aft planking covered with canvas. The bottom of the hull consists of a layer of cedar planking at 45°, a layer of fabric and an outer skin of cedar laid fore and aft.

There are four cockpits, one fitted for vertical and oblique photography in the nose, the pilot's cockpit just in front of the wings, a freight cockpit between the spars of the bottom plane, and an engineer's cockpit level with the trailing edge of the wing. With the exception of three bulkheads, one in front and one behind the pilot's cockpit and one behind the freight cockpit, the two latter of which are removable, the hull is clear of all obstructions, thus permitting easy stowage of equipment and easy inspection of the hull interior.

The wings are of the U.S.A. 27 section, which has a high maximum lift coefficient and a satisfactory efficiency over the flying range.

The top plane is made up of three sections and the bottom plane four sections—the outer sections of both planes being interchangeable. The top and bottom centre sections are built up of wooden ribs and steel tube spars, and the four outer sections are all wood with "I" section wooden spars.

The two engines, originally Wright Whirlwinds, but now 180 h.p. Siddeley Lynxes are on Vee mountings and drive tractor airscrews. The fuel system consists of two 45-gallon tanks situated in the top wing. But provision for



A CANADIAN TWIN.—The Vickers Varuna (two 200 h.p. Armstrong-Siddeley Lynx engines), the first Canadian-built twin-engined flying-boat produced by Canadian Vickers Ltd.

an additional 60-gallon tank, to be fitted in the freight cockpit, is made. This can be connected up to a hand-pump communicating with the wing tanks.

A single connection on the starboard side of the hull connected by a three-way cock to all three tanks can be used for fuelling by pumping petrol from barrels in a tender alongside.

The tail unit is entirely of fabric-covered metal construction.

SPECIFICATION.

Span, top plane... 55 ft. 2½ in.	Fuel and oil	730 lbs.
Span, bottom plane	Weight loaded	5,299 lbs.
Length	Speed, max.	94 m.p.h.
Height	Speed, landing ...	44 m.p.h.
Wing area	Climb to 5,000 ft....	9 mins.
Weight empty ...	Ceiling	14,000 ft.
Useful load	Getting-off run with 1,200 lbs. load	220 yds.

THE VELOS.

The Velos has been designed to the order of the Canadian Air Board solely for photographic survey by means of vertical and oblique photography. The requirements of the view angles of the two cameras necessitate an unusual wing arrangement and the possible float track is limited.

The Velos as arranged permits of vertical photography with a lens of 8 in. focal length and oblique photography with the same lens through a horizontal angle of 220 degrees, which allows of photographs being taken at right angles to the flight path when "crabbing" at 20 degrees.

The machine has also to operate at a distance from a home station with its own crew of three, and so facilities for access to the floats for mooring or attending to the engines have to be provided. The photographer-mechanic can pass aft from his cockpit and out on either lower wing through a door in the side of the fuselage and thence onto the floats.

The Velos, with the exception of the top plane, is of metal throughout. The fuselage is of welded steel tubing in three portions. All the crew are accommodated in advance of the planes, the photographer's cockpit being right in the nose thus having a clear view downwards in front of the floats.

The top plane, in three portions, is of normal wooden construction and rests on the top rails of the fuselage. The bottom wing, of comparatively small area, is built up of steel tube spars with welded steel ribs. The two engines, 180 h.p. Siddeley Lynxes, are carried in Vee mountings between the wings and drive pusher airscrews.

Interplane bracing outside the engine mountings consists

of two widely opened Vees of steel tubes, one on either side.

Fuel is carried in a single tank in the centre section over the fuselage, feed being entirely by gravity. Provision for an additional tank to increase the effective range of the machine is made in the fuselage.

The floats are of duralumin of Canadian Vickers own design and construction. Alternatively a land undercarriage of the split type can be fitted, either with wheels or skis, according to the flying conditions.

THE VISTA.

The Vista is an all-metal monoplane pusher flying-boat fitted with the 60 h.p. Armstrong-Siddeley Genet engine.

The Vista has been designed for the Canadian Air Board to investigate the practicability of Forest Fire Patrol with single-seat aircraft with less first and operational cost than is possible with machines at present in use.

A special form of W/T. equipment capable of transmitting certain predetermined signals is fitted for communication with the base in the event of a forced landing.

The pusher arrangement has been adopted to afford a good view for the pilot and to facilitate single-handed mooring.

The machine, with the exception of the wing, is of metal throughout. The hull and wing-tip floats are of duralumin, and the tail unit and engine-mounting are of steel. The engine-mounting is so arranged that a wing can be dismantled without disturbing it.

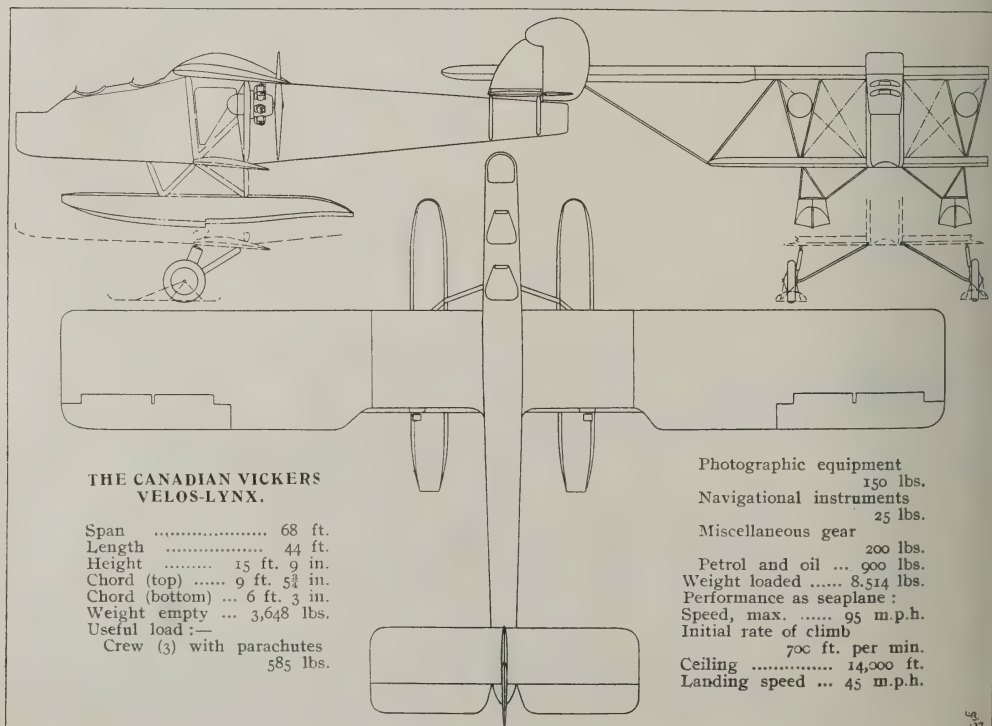
Petrol is carried in a tank forming the streamline nose of the engine "egg," and a uniform head on the carburettor is maintained by an "Autovac" tank.

THE VIGIL.

The Vigil has been designed for the Canadian Air Board as a Forest Patrol landplane. Forest Patrol by landplane is largely confined to the foothills and mountains in the Rocky Mountain district of Western Alberta, and in this region the atmospheric conditions are extremely bumpy at all times, so much so, that the normal braced biplane requires very frequent rigging, in some cases after each flight. The Vigil has therefore been designed without any form of wire or cable bracing.

It is a very normal fuselage biplane fitted with one 180 h.p. Armstrong-Siddeley Lynx engine. The fuselage is of welded steel tube. The top wing, of normal wooden construction, is mounted on the fuselage by a steel tube cabane. The bottom wing is built up of steel tube spars and welded steel ribs and is of considerably less span than the top plane.

Petrol is carried in the top plane, the feed being entirely by gravity. Wheels, skis or floats can be fitted.



THE CANADIAN VICKERS VELOS-LYNX.

Span	68 ft.
Length	44 ft.
Height	15 ft. 9 in.
Chord (top)	9 ft. 5½ in.
Chord (bottom) ...	6 ft. 3 in.
Weight empty ...	3,648 lbs.
Useful load:—	
Crew (3) with parachutes	585 lbs.

Photographic equipment	150 lbs.
Navigational instruments	25 lbs.
Miscellaneous gear	200 lbs.

Petrol and oil ...	900 lbs.
Weight loaded	8,514 lbs.
Performance as seaplane:	
Speed, max.	95 m.p.h.
Initial rate of climb	700 ft. per min.
Ceiling	14,000 ft.
Landing speed ...	45 m.p.h.

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THE WORLD'S PREMIER

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Titanine dope gives constant
tautness to the fabric under
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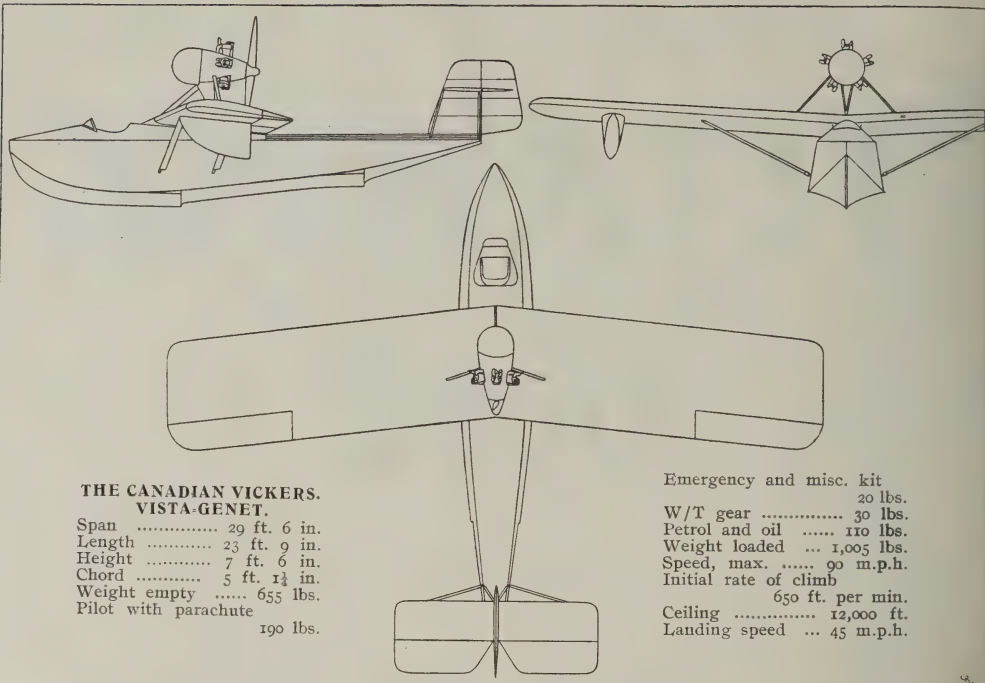
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



**THE CANADIAN VICKERS.
VISTA-GENET.**

Span 29 ft. 6 in.
Length 23 ft. 9 in.
Height 7 ft. 6 in.
Chord 5 ft. 1½ in.
Weight empty 655 lbs.
Pilot with parachute
190 lbs.

Emergency and misc. kit
20 lbs.
W/T gear 30 lbs.
Petrol and oil 110 lbs.
Weight loaded ... 1,005 lbs.
Speed, max. 90 m.p.h.
Initial rate of climb
650 ft. per min.
Ceiling 12,000 ft.
Landing speed ... 45 m.p.h.

Interplane bracing consists of two widely-opened Vees of steel tube, one on either side of the fuselage. One leg of the Vee runs from the top rail of the fuselage to a point about halfway along the span of the bottom plane, the other leg running from here to the top plane.

Under the point where the apices of the Vees are attached to the bottom wings are mounted the two separate units of the Oleo undercarriage.

THE VANESSA.

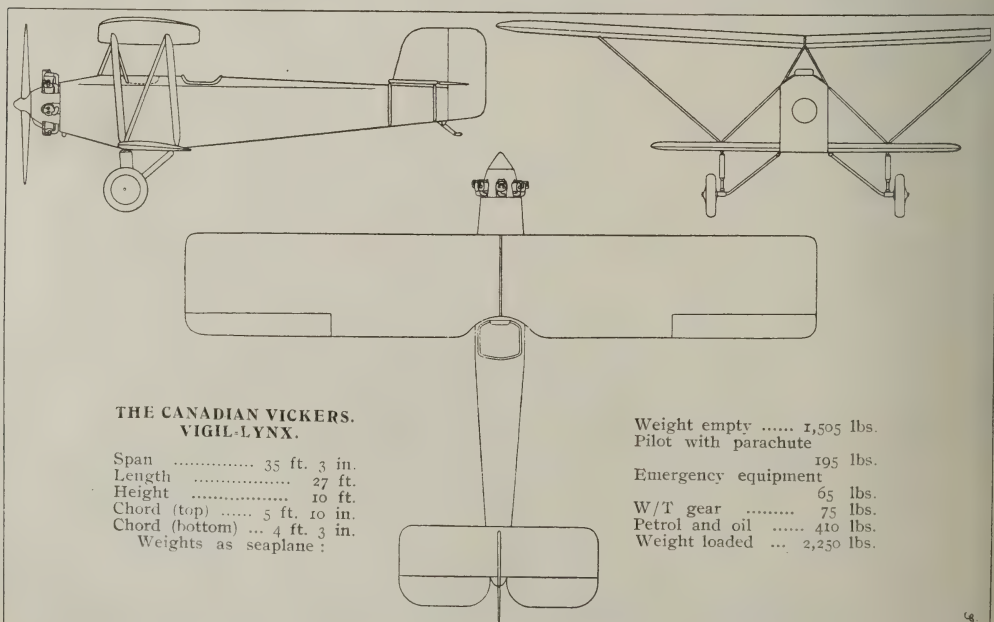
The Vanessa is a small cabin biplane fitted with the 180 h.p. Armstrong-Siddeley Lynx engine, designed for all-the-year-round use in Canada.

Seating is provided for four passengers in addition to the

pilot, and the passengers' seats, of welded duralumin tubing, are arranged to fold up out of the way to allow for the carriage of freight. Provision is also made for the installation of a vertical camera in the cabin to be operated through the floor.

The pilot's seat is immediately behind the engine, the windows in front of him being of unsplinterable glass and are slidable. Doors are provided on either side of the pilot's seat to allow for ready egress for mooring, etc., when the machine is used as a seaplane. Another large door is provided at the rear end of the cabin for passengers and for freight loading.

The fuselage is of welded steel tubing, covered with fabric. The tail surfaces are also of metal, fabric-covered.



**THE CANADIAN VICKERS.
VIGIL-LYNX.**

Span 35 ft. 3 in.
Length 27 ft.
Height 10 ft.
Chord (top) 5 ft. 10 in.
Chord (bottom) ... 4 ft. 3 in.
Weights as seaplane:

Weight empty 1,505 lbs.
Pilot with parachute
195 lbs.
Emergency equipment
65 lbs.
W/T gear 75 lbs.
Petrol and oil 410 lbs.
Weight loaded ... 2,250 lbs.

VICKERS *Limited*

Aircraft Equipment

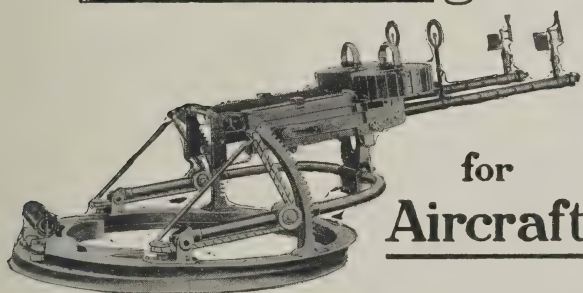
The finest aircraft may fail in its purpose if its equipment is unsatisfactory.

The several items which will form the subject of this series of announcements are confidently recommended to the consideration of all Aircraft Designers, Manufacturers and Users, and to all concerned in the equipment of Air Organisations.

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(patent) Wind-Balanced

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for
Aircraft

THE Airman Gunner of to-day as compared with the Fighting Airman of the Great War, has a much more difficult task in the manipulation and efficient operation of his gun, owing to the higher speed of modern aircraft.

To reduce the Gunners' difficulties to a minimum by the provision of a Mounting that can be operated with ease, there is available the

VICKERS-SCARFF (Patent) WIND-BALANCED
GUN MOUNTING for AIRCRAFT.

Apply for full information and quotations.

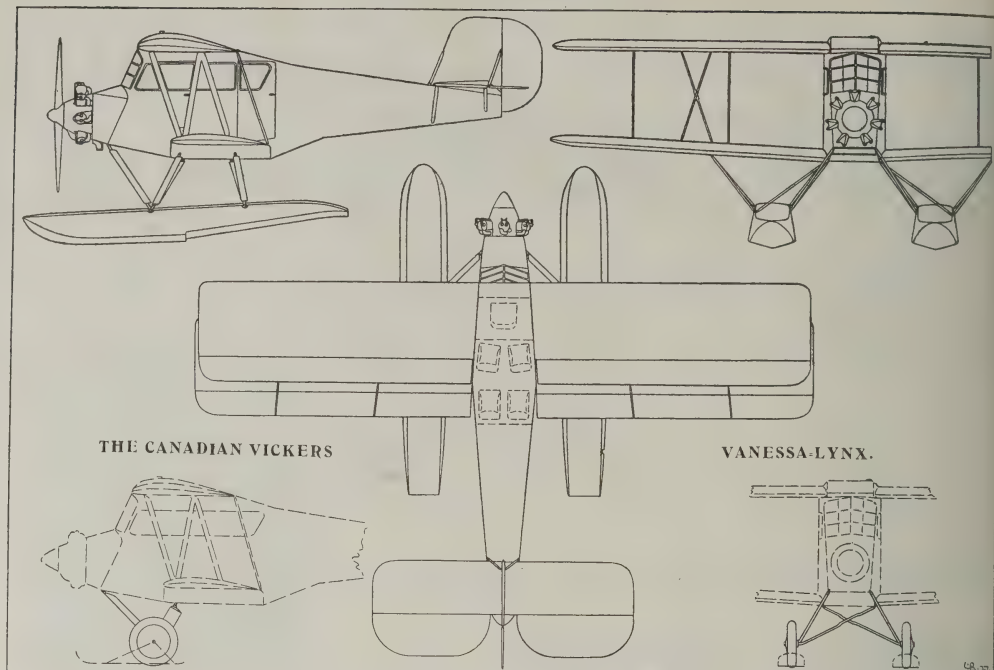
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Aviation Department:
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Telephone: VICTORIA 6900.
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THE CANADIAN VICKERS

VANESSA-LYNX.

The wing bracing is uncommon in that instead of the usual triangulations of struts and wires two "X" struts of streamline tube are employed, one on either side of the fuselage, there being no wire bracing whatever.

The floats are of duralumin construction, and these can be replaced by a wheel or ski undercarriage when necessary.

Hand starting arrangements from the inside of the cabin are provided.

The main fuel tank is carried in the top plane over the fuselage, the feed being entirely by gravity.

SPECIFICATION.

Span	35 ft. 3 in.	Baggage	80 lbs.
Length	30 ft.	Fuel and oil	400 lbs.
Height	12 ft. 4 in.	Weight loaded	3,400 lbs.
Chord	5 ft. 10 in.	Speed, max.	103 m.p.h.
Weights as seaplane:		Initial rate of climb	
Weight empty ...	2,120 lbs.		550 ft. per min.
Pilot	160 lbs.	Ceiling	12,000 ft.
Passengers (4)	640 lbs.	Landing speed	45 m.p.h.

Canadian Vickers Ltd. and Mr. Reid have every reason to be proud of their achievements during the past few years. To them will always belong not only the credit of being the first regular commercial aircraft factory in the Empire outside the British Isles, but also the credit of having produced the first successful and original aircraft designed outside the Mother Country. Long may they continue to add to the progress of British Aviation!

D.H. MOTHS IN CANADA.

In addition to the four D.H. Moth seaplanes which as elsewhere recorded have been ordered by the Ontario Provincial Air Service for forestry patrol, Pacific Airways of Vancouver have ordered a similar machine for forest patrol work, and the Department of Marine and Fisheries have ordered another which is to be used in connection with the Hudson Straits ice patrol.

To meet the needs of Canadian Moth owners the De Havilland Aircraft Co. Ltd. are arranging for Canadian assembly and service depots to be formed on lines similar to those already organised in Australia.

THE HUDSON STRAITS PATROL.

With the approaching completion of the Hudson Bay railway connecting Manitoba with Port Nelson it is hoped that a large volume of seaborne traffic from Eastern Canada to Europe will be diverted to this route. Under these circumstances it will become exceedingly important to have accurate information concerning the conditions of the Hudson Straits as regards freedom from floating ice, etc., during the period when this route can be used by steamships.

To provide such information a special squadron of the

R.C.A.F. has been formed which will make regular patrols of the Straits during the whole open season, and it is hoped daily flights for meteorological purposes during the Winter.

The 500 miles of the Straits will be served by three bases which are now being prepared, and the squadron, now at Borden Camp, is expected to proceed to its stations on the Straits in June.

Six Fokker monoplanes and one D.H. Moth have been acquired by the R.C.A.F. for this particular service.

THE CANADIAN AIR ESTIMATES, 1926/27.

The estimates of the Canadian Department of National Defence for the Royal Canadian Air Force for the year 1926/27 amount to a total of \$3,000,000 (approximately £600,000).

This figure includes the cost of the Department which controls Civil Aviation in Canada, and of such survey and forest patrol work as is carried out by the R.C.A.F. for the Department of the Interior, as well as the maintenance of the actual military force.

In addition to the actual Air Estimates, the Dominions Post Office estimates include a sum of \$75,000 (approximately £15,000) for preliminary work toward the establishment of aerial mail routes.

The following tabular statement of the sums officially voted for aerial purposes by the Dominion Parliament is interesting as showing a decreasing scale of expenditure up to 1925, followed by a marked increase thereafter, a sign of recognition of the growing importance of aerial enterprises, civil and military.

Air Board—1920-21, \$2,000,000; 1921-22, \$1,625,000.

Department of Defence—1924-25, \$1,561,000; 1925-26, \$2,200,000; 1926-27, \$3,000,000.

(Note.—The Air Board ceased to exist and its functions were taken over by the Department of National Defence on Jan. 1, 1923. Figures for the estimates for the year 1923-24 are not available.)

MUNICIPAL AERODROMES IN CANADA.

In the list of Canadian aerodromes and seaplane stations there will be found two seaplane stations (Haileybury, Ontario, and Fredericton, New Brunswick), and two aerodromes (Edmonton, Alberta, and Moose Jaw, Saskatchewan) which are the property of the town or city which they serve.

This practise of providing public municipal aerodromes is one which has become fairly common in the United States, and the Civil Branch of the R.C.A.F. organisation has publicly drawn the attention of Canadian Municipal bodies to the advantages of this course.

According to recent reports, fifteen cities, including Vancouver, B.C., Edmonton and Calgary, Alta., Winnipeg and Virden, Man., and London, Ont., have set aside land for the purpose.

THE WESTLAND WIDGEON



THE Widgeon III is a very strongly built and substantial light aeroplane and it is particularly suitable for real hard work. The machine carries passenger, pilot and about 50 lbs. of luggage. The engine is the well-known Cirrus Mark II, or the Armstrong-Siddeley "Genet." Being a parasol monoplane there is a most excellent view for both pilot and passenger in a downward direction, making the machine ideal for patrol or survey work.

In addition the wings are braced with struts and consequently there is no chance whatever of the rigging getting out of true and needing skilled attention. The passenger's entrance is through a door in the side of the fuselage and he has a very roomy cockpit.

The aeroplane can be supplied with or without dual control. The machine is economical to run, the petrol consumption being approximately 20 miles per gallon, and the oil consumption is about one pint per hour. The overall dimensions of the machine when folded are only 8 ft. 6 ins. high, 10 ft. 6 ins. wide, and 23 ft. 1 in. long.

PRICE (with Cirrus II engine)

£750

Ready to fly away
from the
Works.

**AT BOURNEMOUTH
AIR RACES**

FASTEST MACHINE
using "Cirrus II" Engine.

**FASTEST
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using "Genet" engine.

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A SAFE BUT SPEEDY LIGHT AEROPLANE

WESTLAND AIRCRAFT WORKS
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

AIRCRAFT AND FORESTRY IN CANADA.

From the account which has been given of the history of Civil Aviation in Canada it will be obvious that the greatest use of aircraft so far made in Canada is in connection with forestry. It may therefore be of interest to describe shortly the services which aircraft can and do serve in this connection.

First and foremost so far as Canada is concerned comes the discovery and the suppression of forest fires. It is a little difficult for anyone unfamiliar with any continent other than Europe to realise the vast extent of the Canadian forests, and the improbability of discovering an incipient fire in its opening stages by any form of ground patrol. It is true that the column of smoke from even a relatively small fire would be visible from many miles away if the observer were clear of the surrounding tree tops. But even when a reasonably clear view can be obtained it will not be easy to discover the exact position of the outbreak except by travelling to it.

An aircraft flying at several thousand feet above the top of the trees can spot and fly to the scene of any fire within a radius of many miles in a matter of minutes. If it is fitted, as all R.C.A.F. Forestry Patrol machines are fitted, with wireless, it can report to its base the exact location and size of the outbreak at once, and the base can report by telephone to the forest rangers.

In districts such as Western Alberta where there is a well organised ground forestry service, and ground travel is easy, or where landing ground or water suitable for alighting is scarce, actual fire fighting is done by ground parties. The use of the aeroplane lies chiefly in its ability to detect a fire before it has reached serious proportions, and when consequently it can relatively easily be put out or confined within limits.

In some districts, as for instance, in the Manitoba area, the population is very sparse, travel on the surface is extremely difficult, and the timber is not valuable enough to warrant the maintenance of a highly-organised forest service. Moreover there are vast areas so remote from civilisation that it would be practically impossible, even were it desirable, to maintain such a service in them.

In such cases aircraft are charged both with fire detection and fire suppression duties.

Each forest patrol machine then carries a forest ranger as observer. If when discovered a fire is of small extent and there is a convenient alighting place at hand, the machine alights and the crew and the ranger take it in hand. If the fire is too large, or there is not a sufficiently convenient alighting place, the ranger is landed as near to the fire as possible and the machine returns to its base, embarks further hands, pumps, hose, etc., and returns. If necessary relays of men are taken to the scene, and in cases of serious out-

breaks a fire-fighting crew may be maintained there for several days by supplies ferried to them by the aircraft.

When the problem of keeping a fire-fighting party supplied with food, tools and equipment by ground methods at even fifty miles from their base in a trackless forest is considered, the value of aircraft for such a purpose can easily be imagined. The essence of fire-fighting is, in forests as elsewhere, to get to work while the fire is young, and a machine which can land even a couple of good men on the scene of a new outbreak may make possible the suppression of a fire which would get out of control if a day were wasted in getting to it by foot or canoe.

The second great use of the aeroplane is in the preparation of timber inventories, or forest stock maps. Vast areas of Canadian forest have never been seen from the ground, for travel is almost confined to the water-ways, and only what is on the banks can normally be seen. From an aeroplane the nature of the forest growth over a very large area may be surveyed in a very short time, and information as to the actual nature and value of the timber can be got which otherwise would not be available at all.

The aerial preparation of inventories of this sort is really a branch of aerial surveying. It may be done by aerial photography, in which case the ordinary survey methods, using either oblique, or for very detailed work, vertical photography, are followed in general.

But a large amount of such work is done by means of sketching. A competent forester is carried as an observer. He is provided with the best available map of the district to be catalogued and is flown over the area. From such topographical features as are marked on the map he aligns his map with the country beneath him, and sketches on the map the confines of the various types of forest growth visible to him, together with any useful topographical details not shown on the map.

By this method the nature of the growth, its suitability or otherwise for commercial exploitation, and details of water- or other ways—suitable for transport in areas of hundreds of square miles can be determined with an accuracy and a speed which cannot be approached by any other method.

Secondary uses of aircraft in connection with forestry work are numerous. The rapid transport of food or supplies to distant bases, transport of medical aid to injured workers and so forth, are fairly obvious.

The use of aeroplanes in discovering areas infected with disease has proved very satisfactory, and a good deal of light has been thrown on the methods by which infection by White Pine Blister Rust is spread.

But it is on the value of the aeroplane for fire detection and suppression, and in making timber inventories, that the very extensive development of aerial forestry work mainly depends.



FIRE IN THE FOREST.—A forest fire on Black Island, Lake Winnipeg, Manitoba. On the lake can be seen a Vickers Viking which was used to transport fire rangers and fire-fighting equipment.

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Each time on Shell Aviation Spirit.

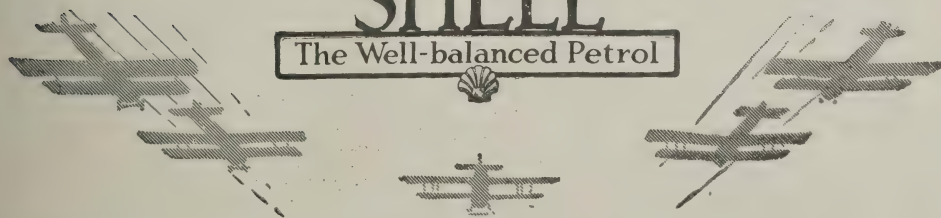
First by Alcock and Brown. Next by
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by Pinedo. And, on March 17th last, by
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CIVIL AIR TRANSPORT IN CANADA.

Although Canada has no air lines of the type familiar in Europe, there has been quite a considerable volume of passenger and mail transport within the Dominion since 1919.

The War-time R.A.F. contained many officers of Canadian birth and upbringing, some large number of whom on demobilisation and return to their native land acquired for themselves aeroplanes, largely from American surplus war stocks, and embarked on joy-riding, exhibition flying and general aerial odd jobs on lines not unlike those of the U.S. "gypsy" fliers.

The numbers engaged on such work steadily dwindled with time. By 1924 there were, apart from firms engaged on survey or forestry work, only five recorded survivors engaged in joyride and allied types of flying.

In 1924 one of these five dropped out, but a Mr. Fitzsimmons, of Lethbridge, Alberta, started a regular passenger service from Lethbridge to Waterton Lakes, which carried 155 passengers during the Summer, and ran a "taxi" service from Lethbridge to some oil wells 115 miles away.

In the same year Laurentide Air Services ran a regular passenger mail and goods service from Haileybury, Ont., to the Rouyn Goldfields, which carried over 1,000 passengers, 78,000 lbs. of freight, and 15,000 letters before the end of the year. The distance from the railway to the Goldfields was not more than about 50 miles and the demand for air transport naturally declined rapidly as reasonable roads and later a branch railway came into existence.

Nevertheless on a diminished scale this service operated in 1925 by Mr. B. W. Broatch, and in 1926 by the Fairchild Air Transport Co. Ltd., continued to exist and showed signs in the latter years of meeting a distinct need. At any rate with one flying-boat it carried 576 passengers and 28,000 lbs. of mail and goods in a few days over five months in 1926.

The start in 1924 of these two services may be regarded as the beginning in Canada of anything approaching regular air lines. This statement, it is true, overlooks the operations of Alaska Airways Ltd. which under the management of Mr. Edward Hubbard, has carried mails between Seattle and Victoria, B.C., from 1922 to the present time, thus securing a connection between the U.S. Post Office system and the trans-Pacific mail steamers to and from Victoria. But Alaska Airways Ltd. is and was a U.S. firm working under contract with the U.S. Post Office.

In 1925 the J. V. Elliott Air Service, which also goes in for joyride, advertising and exhibition work, operated a service from Hudson, Ont., to the Red Lake district where new mineral discoveries are being developed. This service operated during the whole Winter of 1925/26.

In 1926 two new transport concerns appeared in the field. Patricia Airways and Exploration Ltd., and Western Canada Airways.

Both operated from Sioux Lookout, which is on the Canadian National Railway, in Ontario, and South of a district including Red Lake in which valuable mineral deposits have recently been discovered. The activities of these two firms seems mainly to have been devoted to rendering to those working in these fields transport services similar to those given by the air service to the Rouyn fields. The first of these firms carried 259 passengers, 1,400 lbs. of freight and 3,000 lbs. of mails with two aircraft during about six months, and the second carried 18 passengers and 850 lbs. of freight in its first week of operation ending Dec. 31, 1926.

At the end of 1926 there appear to have been only three aircraft operators in Canada whose work was to any large extent joy-riding, out of a total of fourteen engaged in commercial flying. In the year 1922 there were altogether 23 civil flying concerns of which 20 appear to have been mainly engaged in joy-riding.

Three of the fourteen firms operating in 1926 were engaged wholly or mainly in photographic work. Those three were Fairchild Aerial Surveys (of Canada) Ltd., Brock and Waymouth of Canada Ltd., and the Compagnie Aérienne Franco-Canadienne. One (Canada Airways) was mainly engaged on Forestry work for the Provincial Government of Quebec, and one (The Northern Syndicate) used aircraft for private prospecting and exploratory services.

Ten concerns, including Northern Airways, engaged to some extent or another in the transport of paying passengers, goods and mail, and of these ten, five (Canada Airways, J. V. Elliott Air Service, Fairchild Air Transport, Patricia Airways and Explorations Ltd., and Western Canada Airways Ltd.) operated a regular service over a definite route for some part of the year.

As will be gathered from the preceding description of most of these regular services, all of them have aimed at providing rapid communications between railways, and new but rapidly-developing districts. It seems probable that in most such cases, as has already happened to some extent in the case of the Rouyn Goldfield, rail or other adequate surface

communications will speedily be provided to these districts, and the volume of traffic available for air services will decline.

But in Canada, particularly as the work of aerial survey progresses, new districts are likely continually to begin to develop, and by the time one such district has ceased to need air transport, another will be ready to make use of it.

This it will be seen opens up a very promising field for commercial air transport. It is a class of business entirely different from that of running Air Lines in Europe, and one for which the aeroplane or seaplane is much more fitted.

In the case of the services before-mentioned the distance from the terminal on the railroad to the centre of the developing district is small, of the order of 50 to 100 miles. In the absence of roads or railways, ground transport means several days at least of travel—probably exceedingly uncomfortable travel, particularly in Winter with a temperature below zero.

Air transport means an hour or so at the outside, and the saving of time is therefore worth quite a high fare. Moreover, with such short trips, a large number of journeys can be made daily if necessary and a large volume of traffic may be handled by few machines, and a small capital outlay.

There seems to be little doubt however that long-distance regular air lines will be promoted in the Dominion in the near future. These at first will be mail services.

The Dominion Post Office estimates for the year 1926/27 include a sum of \$75,000 for preliminary work towards the establishment of aerial mail routes, and it has definitely been stated in the Dominion Parliament that such a route is to be operated experimentally.

The Dominion of Canada is about 2,750 miles wide from East to West, and over this distance, even within the belt served by the main railway lines, there is room for considerable saving in time of mail transit by the use of air transport. For the distribution of mails to centres lying off the main railway system there are even greater possibilities for a postal air service.

At the moment no information is available as to the nature of the projected experimental Air Mail service, but with the lessons of the U.S. efforts in this direction, together with the experiences of other air operations in Canada itself which are available to the Dominion authorities there can be little doubt that the results will be at least technically successful.

W. H. S.

OPERATORS IN CIVIL FLYING IN CANADA, 1926.

(1) OFFICIAL BODIES.

Royal Canadian Air Force, Vancouver (B.C.), Seaplanes, Fishery and Customs Patrol; High River (Alberta), Land machines, Forest fire protection, Air Survey; Victoria Beach (Manitoba), Norway House (Manitoba), Cormorant Lake (Manitoba), Seaplanes, Forest fire protection and Air Survey.

Ontario Provincial Air Service, Sault Ste. Marie, Sudbury, Orient Bay, Sioux Lookout, Seaplanes, Forest fire protection, forest type mapping, general transport for Government Departments.

(2) PRIVATE FIRMS.

Canadian Airways Ltd., Three Rivers (Quebec), Seaplanes, Headquarters and Repair Depot; Roberval (Quebec), Seaplane, Forestry services for Provincial Govt. of Quebec.

J. V. Elliott, Air Service, Western Ontario, Landplane, Joyride, advertising and exhibition flying. Also ran service Hudson (Ont.) to Red Lake district.

Fairchild Aerial Surveys (of Canada) Ltd., Grand'Mere (Quebec), Land and Seaplane, Photographic Survey. Forest type mapping.

Fairchild Air Transport Co. Ltd., Haileybury (Ont.), Seaplane, Rouyn Goldfield Air Service (passenger, mail and freight).

Northern Syndicate Ltd., Lac La Biche (Alberta), Seaplane, Exploratory and prospecting expeditions.

Pacific Airways Ltd., Vancouver, Seaplane, Freight and passenger trips, advertising flights, flying instruction and miscellaneous work.

Patricia Airways and Exploration Ltd., Sioux Lookout (Ont.), Land and Seaplane, Passenger, goods and mail service to Red Lake district.

Western Canada Airways Ltd., Sioux Lookout (Ont.), Land machine, passenger, goods and mail to Red Lake district.

Compagnie Aérienne Franco-Canadienne, Seaplane, Vertical photography for Quebec Provincial Government, Gaspé Peninsula.

Bert. McConnell, Ford (Ont.), Landplane, Passenger carrying, advertising, and instruction.

C. S. Caldwell, Seaplane, Seal-spotting for Newfoundland sealing fleet.

W. A. Straith, Winnipeg, Experimental flying.

R. O. Tranholme, Windsor (Ont.), Passenger flights.

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GERMANY

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of America
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THE ROYAL AIR FORCE.

The London Gazette.

May 3.

GENERAL DUTIES BRANCH.—Flg. Off. R. Tuck is placed on the retired list at his own request (May 1). Flg. Off. F. H. Davis is placed on the retired list on account of ill-health (May 1). The following are transferred to the Reserve:—CLASS A.—Flg. Off. J. V. Holman (May 1). CLASS C.—Flt. Lt. T. J. West, M.C. (Apr. 19).

The following Flg. Offs. resign their S.S. comms.:—J. B. Knocker (Lt., Indian Army, retd.) (Apr. 19); A. L. Ottway (Apr. 20). The S.S. comm. of Flt. Off. on probation J. F. O'R. Coleman is terminated on cessation of duty (May 4).

STORES BRANCH.—Flg. Off. R. Lamb is transferred to the Reserve, Class B (Apr. 30).

MEDICAL BRANCH.—Flt. Lt. R. S. Topham, M.B., D.P.H., D.M.R.E., is placed on the retired list at his own request (May 1); Flt. Lt. L. Game is transferred to the Reserve, Class D₂, and is employed with the Regular Air Force for a period of one year (Apr. 21).

MEMORANDA.—Sec. Lt. S. M. Myles is deprived of permission to retain rank (Jan. 18). Lt. W. C. Francis is deprived of permission to retain rank on conviction by the Civil Power (Apr. 11).

RESERVE OF AIR FORCE OFFICERS.—The following are granted comms. on probation, in the General Duties Branch in the ranks stated:—CLASS A.A.: Plt. Off.—R. P. J. Radbourne (Apr. 20). CLASS B.B.: Sq. LDR.—C. D. Stewart (May 3). Plt. Off.—F. H. Dight (May 3).

The following Plt. Offs. are promoted to the rank of Flg. Off.:—J. Hill, C. W. Lofthouse, R. G. Shaw (Apr. 5); C. W. Carter (Apr. 6); H. S. Fulton, O. M. Sheil-Small (Apr. 7); R. E. La F. Wyatt (Apr. 12); C. Kenny (Apr. 13); L. W. Van Oppen (Apr. 19); D. S. Purnell (Apr. 20). Plt. Off. on probation E. L. C. Wylie is confirmed in rank (May 3); Flg. Off. A. E. Stewart is transferred from Class A to Class C (May 3); Flt. Lt. P. G. N. Ommanney relinquishes his comm. on completion of service (Apr. 4); Flg. Off. H. C. Kelly resigns his comm. (Sept. 16, 1926).

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—The following to be Plt. Off.—No. 602 CITY OF GLASGOW (BOMBING) SQUADRON.—D. F. McIntyre (Apr. 20).

A Fatal Accident.

The Air Ministry regrets to announce that Plt. Off. Keith Conway Blatchford, the pilot and sole occupant of the aircraft, died of injuries on May 3, as the result of an accident at Temple Bruer, four miles south-west of Digby, Lincolnshire, to an Avro Lynx machine of No. 2 F.T.S., Digby, on May 2.

The Air Defence of London.

An application has been made by the Air Officer Commanding in Chief, Air Defence of Great Britain, to the London County Council Park and Open Spaces Committee for permission to be given for certain sites to be used as emergency landing grounds for aircraft.

The Air Officer Commanding-in-Chief has pointed out that various exercises will have to be carried out by day and night over the London Area in connection with the scheme of defence, and although pilots will be ordered to keep above 5,000 feet, there is always a possibility of engine failure, and the organisation of emergency landing grounds would tend to secure safety to the public and lessen the danger to the pilots.

R.A.F. SPORTS AND PASTIMES.

The Cadet College Contests.

His Majesty the King was present at the annual Triangular Athletic Meeting at Queen's Club on May 7 between Woolwich, Sandhurst and Cranwell.

Sandhurst won the contest with 33 points, Cranwell were second with 13 points and Woolwich third with 8 points.

The results were:—

High Jump.—E. S. O. Congdon, Wellington (Sandhurst), 5 ft. 9 in., 1; J. B. Harrison, Dean Close, Cheltenham (Sandhurst), 5 ft. 6 in., 2; J. G. W. Weston, Cranbrook (Cranwell), 5 ft. 4 in., 3.
100 Yards Race.—J. H. Mott, Imperial Service College (Sandhurst), 1; J. B. Chalmers, Harrow (Cranwell), 2; N. E. White, Clifton (Cranwell), 3. Won by a foot. Time, 10 3-10 sec.
Half-mile Race.—R. F. Walter, Bromsgrove (Woolwich), 1; J. W.

Gillan, Imperial Service College (Cranwell), 2; C. C. Lipscomb, Charterhouse (Sandhurst), 3. Won by five yards. Time, 2 mins. 2 1-5 sec.

Putting the Weight.—S. M. Griffiths, Royal Engineers (Sandhurst), 34 ft. 3 in., 1; H. L. Lewis, Rossall (Woolwich), 32 ft. 10 in., 2; W. S. Ritchie, Downside (Sandhurst), 32 ft. 2 1/2 in., 3.

Long Jump.—K. F. Marks, Ipswich (Sandhurst), 20 ft. 5 1/2 in., 1; N. E. White, Clifton (Cranwell), 19 ft. 8 in., 2; W. S. Beamiss, Royal Corps of Signals (Sandhurst), 19 ft. 7 1/2 in., 3.

Two Miles Race.—H. R. Dale, Hymer's (Cranwell), 1; R. F. Parry, Sherborne (Sandhurst), 2; S. W. Walsh, Warwick (Sandhurst), 3. Won by 35 yards. Time, 10 mins. 22 3-5 sec.

Quarter-mile Race.—M. B. Coleman, Beaumont (Sandhurst), 1; R. Berridge, Downside (Woolwich), 2; H. G. Woolley, Auckland Grammar New Zealand (Sandhurst), 3. Won by a foot. Time, 53 4-5 sec.

One Mile Race.—T. T. Body, Malvern (Sandhurst), 1; A. L. Weait (Cranwell), 2; C. H. R. Hyde, Shrewsbury (Sandhurst), 3. Won by 1 1/2 yards. Time, 4 mins. 39 3-5 sec.

120 Yards Hurdles.—W. D. H. Duke, Shrewsbury (Sandhurst), 1; I. L. Fleming, Eton (Sandhurst), 2; A. G. Proudlock, Bedford (Woolwich), 3. Won by a yard. Time, 1 1/2 sec.

At the end of the meeting the Shield and medals were presented by Lady Trenchard.

Cranwell's one victory, in the Two Mile, was won by as fine a piece of running as one has seen. Mr. Dale ran with Mr. Parry the whole way till 220 yards from home, where the two of them held a good lead of the rest. There he put all his reserve strength into a superb dash and won by 35 yards, apparently with plenty of strength to spare. If Mr. Weait had showed similar generalship Cranwell might have won the Mile also. Mr. Body collapsed as he broke the tape, but Mr. Weait did not even run himself to a stand-still, and slowed down when he saw that he was beaten. If he had sprinted sooner and fought the race to a finish Mr. Body must have collapsed before reaching the post.—C. G. G.

Barbed Wire?

The Air Ministry announces that the long-distance flight to be undertaken by Flt. Lt. C. R. Carr, D.F.C., will probably start from the R.A.F. Aerodrome, Cranwell, between May 14-20 in the very early morning. The communication adds:—

No guarantee can, however, be given that Flt. Lt. Carr will start at all or at what hour or date.

A small enclosure will be specially reserved for Press representatives who may wish to witness the departure of the machine, but it will not be possible to grant further facilities and in particular interviews with the officers who are undertaking the flight cannot be permitted.

The Air Ministry might have stretched a point and allotted a small camping ground for the use of the Press representatives, in addition to the small enclosure, presumably protected by barbed wire, in which they will probably live from May 14 to 20. They might also have added that inquisitive troops will not be allowed to interview the Press representatives in their lair, but that suitable nourishment may be offered them through the wire or what not.

The High-Speed Seaplanes.

On Wednesday of last week, Lt.-Col. W. A. Bristow's Crusader (Bristol Mercury) was successfully tested by Mr. Bert Hinkler at Felixstowe. She took off the water easily, was very controllable in the air, and alighted at a reasonable speed. It is understood that the performance of the machine is fully up to Col. Bristow's expectations, and that her construction is fully up to the high reputation of the Short Brothers, who built her.

At the moment of writing the Crusader (or "Curious Ada" as she is called by the disrespectful) has made two flights of 15 minutes each. The engine is being tuned up and a speed test will probably be made this week.

The Gloster-Napier IV has done some taxiing tests at Felixstowe, but up to the present she has not flown.



THE SERVICE AFRICAN TOUR.—The Cape Flight under Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., R.A.F., about to leave Heliopolis at 06.00 hours on Mar. 30 on the Service tour to the Cape and back. The machines are standard Fairey III's, with 450 h.p. Napier Lion engines. The flight left Pretoria on May 9.

DON'T FORGET THE HAMBLE PAGEANT ON SUNDAY NEXT.

SALVATOR PARACHUTES



Lieut. Freri demonstrating the Salvator Parachute to General Piccio and His Excellency Mussolini.

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THE FLYING CLUBS.

The Hampshire Pageant.

Thirty aeroplanes have been entered for the various competitive events at the Hampshire Aero Club's Pageant to be held at Hamble on May 15. These are as follows:—

PRIVATE OWNERS:—Mr. A. S. Buller, G-EBDO, D.H.37 (Nimbus engine); Flg. Off. A. H. Wheeler, G-EBQM, S.E.54 (Viper); Capt. G. de Havilland, G-EBQH, Moth X (Cirrus Mk. II); the Hon. Lady Bailey, G-EBPU, Moth (Cirrus Mk. II); Mrs. Elliot-Lynn, G-EBPA, S.E.54 (Viper); Mr. R. A. Bruce, G-EBPW, Widgeon III (Cirrus Mk. II); Col. The Master of Sempill, G-EBJT, Widgeon II (Genet); R. P. Cooper, G-EBRA, D.H.53 (Tomtit); Lt.-Col. M. O. Darby, G-EBQJ, Martinsyde (Nimbus); Mr. R. Blackburn, G-EBKJ, Blue Bird (Genet); Mr. D. A. N. Watt, G-EBQG, S.E.54 (Viper); and G-EAIN, Sopwith Grasshopper (100 h.p. Anzani); Mr. N. H. Jones, G-EBJO, A.N.E.C. II (Cherub III); Capt. Dawson Paul, G-EAWS, P.9 (R.A.F. IA).

FLYING CLUBS:—The R.A.E. Aero Club, G-EBQX, Avian (Cirrus II), and G-EBQP, D.H.53 (Cherub III).

The Hulton Aero Club, G-BOO, H.A.C.I. (Cherub III).

The London Aeroplane Club, G-EBJM, Bristol Brownie (Cherub III); G-EBMF, Moth (Cirrus I), and G-EBQH, Moth (Cirrus II).

The Newcastle-upon-Tyne Aero Club, G-EBQV, Moth (Cirrus II).

The Midland Aero Club, G-EBLW, Moth (Cirrus I).

The Hampshire Aeroplane Club, G-EBQH, Moth (Cirrus II); G-EBOI, Moth (Cirrus II).

THE AIRCRAFT INDUSTRY:—A. V. Roe and Co. Ltd., G-EBQL, Avian (Cirrus II); G-EBRC, Avian (Cirrus II); G-EBKG, Lynx Tourer (Lynx).

The De Havilland Aircraft Co. Ltd., G-EBOU, Moth (Genet); G-EBPG, Moth (Cirrus I).

The Bistol Aeroplane Co. Ltd., G-EBJK, Brownie (Cherub).

THE PROGRAMME.

The following are the organised events and the allotted times:—
2.30 p.m.—FLY-PAST. In this a series of aircraft, beginning with a D.H.53, and in an ascending order of magnitude up to the Avro Avia bomber, will taxi past the public and take to the air. Twenty-one different types are to take part in this event.

2.55 p.m.—WAKEFIELD LIGHT AEROPLANE HANDICAP for the Sir Charles Wakefield Challenge Cup. Open to any aircraft with engine not exceeding 5,000 c.c. capacity. (Twenty-three entries.)

3.20 p.m.—EXHIBITION OF EVOLUTIONS. Formation, etc., flying by a flight of three Supermarine Southampton flying-boats from the R.A.F. station, Calshot (Sq. Ldr. L. T. Lloyd in command) and a flight of five Gloster Gamecocks (No. 43 Sqn., R.A.F.).

3.35 p.m.—LIGHT AEROPLANE UTILITY RACE. Open to one machine from each of the subsidised Clubs. Pilot and passenger will wheel machine out of shed, unfold, start up, fly round course and stow machine away in shed. (Entries from London, Newcastle, Midland and Hampshire.)

3.50 p.m.—PAGEANT OF TRAVEL. RELAY RACE. Race between three teams (Red, White and Blue), each consisting of a pedestrian, a horseman, a cyclist, a motorist, and an aeroplane pilot.

4.10 p.m.—PRESIDENT'S CUP RACE. Open to any aircraft with an engine of not more than 100 h.p. piloted by a member of a British Aero Club. For the President's Cup—presented by the Rt. Hon. Lord Louis Mountbatten, K.C.V.O., R.N. (Twenty-four entries.)

4.45 p.m.—EXHIBITION OF STUNTING IN FORMATION by a flight of Gloster Gamecocks (No. 43 Sqn., R.A.F.).

5.0 p.m.—PARACHUTE DESCENT. (Surrey Flying Services.)

5.15 p.m.—GRAND RELAY RACE. Between three teams (Red, White and Green), each consisting of one Supermarine Southampton flying-boat, one Gloster Gamecock, and one light aeroplane.

5.30 p.m.—EXHIBITION OF ECCENTRIC FLYING by Flt. Lt. Calvey, R.A.F., on a Gloster Gamecock.

5.40 p.m.—MORRIS OPEN HANDICAP. Open to all comers for the Morris Challenge Cup presented by W. R. Morris, Esq. (Thirty entries.)

The London Aeroplane Club.

[Sec.: H. E. Perrin, 3, Clifford Street, London, W.1.]
Total flying time for the month of April 165 hrs. 55 mins., made up as follows:—Dual Instruction (122 flights), 56 hrs. 0 mins. Solos (123 flights), 78 hrs. Passengers (53 flights), 21 hrs. 15 mins. Tests (59 flights), 9 hrs. 50 mins. Total, 359 flights, 165 hrs. 55 mins.

Report for week ending May 8.

Flying time 35 hrs. 25 mins. Owing to three machines being under repair all the week the flying was very much restricted.

Instructors.—Messrs. F. G. M. Sparks and S. I. F. St. Barbe.

Dual.—Miss Spooner, A. S. Mulder, L. Daniels, R. P. Cooper, Lord Carlown, C. H. Swan, A. C. M. Jackman, C. Black, C. H. Swan, Mr. O'Brien, Miss Wilson, I. H. McClure, H. R. Presland, J. J. H. B. E. A. Lingard, H. S. Greenland, F. C. Elford, H. M. Samuels, H. O. Guggenheim, R. Drysdale Smith, J. A. Simson, A. S. Richardson, I. Rich, P. O. A. Davison, Capt. H. Spooner.

Solo.—E. L. D. Moore, A. C. Pearson, Miss O'Brien, Capt. H. Spooner, G. Merton, O. J. Tapper, E. T. Symmonds, Sq. Ldr. M. E. A. Wright, A. F. Wallace, G. Terrell.

Passengers.—S. O'Hara, B. Merry, Miss Judge, Miss Berry, Mrs. McClure, A. J. Mulder, L. C. Davey, C. Potter, Miss Terrell, L. H. Whiteside, B. N. Whiteside, Miss Clode.

The Hampshire Air Pageant.—The following Pilots and machines have been selected for the Races on Sunday next, May 15:—

Machines.—G-EBMF, D.H. Moth (Cirrus Mk. II), G-EBJM, Bristol Brownie (Cherub III), G-EBQH, D.H. Moth (Cirrus Mk. II).

Pilots.—Messrs. F. G. M. Sparks, G. H. Craig, A. R. Ogston, L. J. C. Mitchell, O. J. Tapper, Major K. M. Beaumont, and Capt. H. Spooner.

The Lancashire Aero Club.

[Sec.: C. J. Wood, Windsor Bank, Chapel Street, Hyde, Cheshire.]

Report for week ending May 7.

Total flying time 42 hrs 5 mins., made up as follows:—

Dual with Mr. Brown:—Messrs. Caldecott 1 hr. 25 mins., Cohen 1 hr. 20 mins., Leeming 1 hr. 15 mins., Ward 1 hr. 10 mins., Torres 55 mins., Musgrave 50 mins., Miss Baerlein 45 mins., Miss Emery 40 mins., Messrs. Collinson and Meades 40 mins. each, Harper 35 mins., Hartley and Turner 30 mins. each, Harber, Shiers and Ruddy 25 mins. each, Keaves and Rowley 20 mins. each, Chadwick 15 mins., Mills and Patricious 10 mins. each. Dual with Mr. Scholes:—Messrs. Ruddy 30 mins., Fray 25 mins., Harber and F. Scholes 15 mins. each. Dual with Mr. Cantrell:—Messrs. Goodyear 20 mins., Keays 10 mins.

Solo:—Messrs. Twemlow 1 hr. 45 mins., Abdalla 1 hr. 40 mins., Nelson 1 hr. 40 mins., Costa 1 hr. 15 mins., Slater 1 hr., Benson 1 hr. 5 mins., Gattrell and Forshaw 45 mins. each, Chapman 35 mins., Wade 30 mins., Lacayo 40 mins., Dickinson 30 mins., Crabtree and Leeming 20 mins. each, Fallon 15 mins., Goodfellow 10 mins.

Joy-rides:—With Messrs. Brown, Cantrell, Scholes, Lacayo, Leeming and Costa—Mrs. Crawford, Mrs. Caldecott, Mrs. Hogarth, Mrs. Thorpe, Miss Rainsford, Miss Boll, Miss Dodge, Miss Hilton, Miss Goodwin, Messrs. Caldecott, Murrell (photography), Briggs, Toy, Faulkner, Dodge, Fallon, Arney, Bayliss, Twemlow, E. Scholes, Torres.

Weather was bad in the middle of the week, but we got a good start on Sunday, the 1st, when the Club record for a day was again raised, this time to 16 hrs 25 mins.

During the week Messrs. Benson, Nelson and Slater all successfully did their height tests. Messrs. Lacayo and Twemlow flew over for Birmingham's show and reported on their return that they had won a gold cup, which, however, we have not yet seen. As the cup was for the best-kept machine and was won by LR, our oldest Moth, the ground staff deserve our hearty congratulations.

Although strictly speaking not included in the week, mention must be made of Mr. and Mrs. Stack's visit on the 8th. Although no special invitation was issued to the general public a crowd of nearly 5,000 people assembled to greet them, a striking tribute to the great enthusiasm aroused in Lancashire by the flight to India.

Yorkshire very sportingly sent a machine over to Woodford, but unfortunately it had to return early and the pilots missed the hospitality we had prepared for them.

After giving Mr. and Mrs. Stack a great reception the crowd dispersed, and so missed the most thrilling part of the afternoon's proceedings, when Mr. Dickson, taking a dislike to a wire fence, landed on it and appeared on the aerodrome trailing clouds of disgrace, so to speak. Proceedings concluded at approximately 1.0 a.m.



TEACHING THE YOUNG IDEA HOW TO SCOOT.—People of Beaumont College chasing Mr. Lacayo's Avro Avian across Runnymede, which, being the Mead (or meadow) of the Runes (or writings) where King John made his mark on Magna Charta, has nothing to do with running.

DON'T FORGET THE HAMBLE PAGEANT ON SUNDAY NEXT.



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WHEN IN EUROPE TRAVEL BY AIR.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Newcastle-upon-Tyne Aero Club.

[Sec.: A. H. Bell, Cramlington Aerodrome, Northumberland.]
Report for week ending May 8.

Gales appear to have given way to more or less permanent fogs. Flying was just possible on two days during the week and Sunday proved almost ideal, with good visibility and a really warming temperature. There was a good turn-out of members and the two Moths were fully booked all day.

In addition to the Moths, a D.H.53, which has been purchased by four members from the Director of Contracts, was flown by the owners and Mr. Parkinson during the week. All are delighted with the machine, especially are they pleased with the ease with which it can be flown. It gets off well and maintains height with the engine well throttled down. It is confined at present to aerodrome flying, but has been a source of attraction whenever it has been out.

The total time flown on Moths during the week was 23 hrs. 10 mins., 11 hrs. 30 mins. on QV and 11 hrs. 40 mins. on LX, both machines having been in the air whenever the weather allowed. Four hrs 45 mins. was flown on the 53, which makes the total of aerodrome flying 27 hrs. 55 mins.

On Sunday, the 8th, the two Moths were in the air for 15 hrs. 40 mins. (machine-hours therefore being 7 hrs. 50 mins.), and the 53 1 hr.

The following members flew with Mr. Parkinson:—Mrs. Heslop, Mr. Meisegae, Mr. Shaw, Mr. Thirlwell, Capt. Milburn, Mr. Pargeter, Mr. V. Heaton, Junr., Mr. A. E. George, Mr. J. Gibson. Miss Leathart had advanced instruction.

Solo flights were done by Mr. Bainbridge and Mr. Turnbull.

"A" Pilots.—Mr. H. Ellis with Mr. Thirlwell. Mr. P. Forsyth Heppell with Mrs. Heppell. Mr. C. Thompson with Mrs. Heslop, Miss Luckman, Mr. Luckman, Mrs. White, Mrs. C. Thompson and Mrs. J. Thompson. Mr. W. Baxter Ellis with Mrs. Ellis. Mr. R. N. Thompson with Mr. N. S. Todd. Mr. N. S. Todd with Mr. Williams and Mr. A. Bell. Mr. A. Bell with Mr. J. Bell.

Joy-rides with Mr. Parkinson.—Mr. Smith, Mr. P. F. Heppell, Mr. H. Ellis and Mr. J. Heppell.

The Club is competing in all events at the Hampshire Meeting and wishes the Hampshire Club every success for their first Meeting. We learn that *The Daily Mail* has arranged suitable weather, which is all that can be added to the excellent Club organisation to ensure success.

The Prize List for the Newcastle Meeting on June 11, is now completed and should prove attractive. The response to invitations to probable competitors has so far proved very satisfactory.

THE NEWCASTLE-UPON-TYNE FLYING MEETING.

Events on Saturday, June 11:—

- (1) Private Owners' Handicap.—(Open to all privately-owned Aeroplanes (definition of "privately owned" is to be at the sole discretion of The Newcastle-upon-Tyne Aero Club. Course approximately 20 miles.) 1st Prize—Challenge Cup and £20. and Prize—£5.
- (2) The President's Cup Race.—(Race for the Pilot Instructors of approved Light Aeroplanes Clubs and Pilots holding "B" Licence flying Light Aeroplanes. Each type of aeroplane will be handicapped. Course approximately 20 miles.) 1st Prize—The President's Challenge Cup and £20 (presented by Col. Sir Joseph Reed). 2nd Prize—£5.
- (3) Open Handicap.—(Open to all comers. Course approximately 20 miles.) 1st Prize—£75. and Prize—£25.
- (4) Inter-Club Relay Race.—(Open to Teams of Three Pilots from each approved Club, which may include Pilot Instructors. Course approximately 4 miles. Three laps, each Pilot flying one lap.) 1st Prize—Challenge Cup (presented by Messrs. V. S. and J. M. Davidson), and a Prize for each member of the winning team.
- (5) Inter-Club Members' Handicap.—(Open to members of approved Light Aeroplanes Clubs flying Light Aeroplane. Pilot Instructors (honorary or otherwise) not eligible.) Prize—Solid Silver Challenge Cup (presented by Mrs. de Lancy Willson).

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth, Birmingham.]

Report for week ending May 7.

Total flying time 15 hrs. 32 mins.

Dual instruction with Mr. McDonough:—E. P. Lane, F. Coxhill, R. Cazaleat.

Solo:—H. J. Willis, E. J. Brighton, J. F. C. Brinton, A. M. Glover, E. R. King, W. Swan.

Joy-rides:—J. S. Austin, E. J. Brighton, R. Brinton, A. Ellison.

Passengers with Mr. Brighton:—J. Brinton, Miss C. Ball, S. Coxhill, R. Aspinall, W. Morris, N. Crane, S. H. Smith.

Mr. G. V. Perry, a member in the Club who learned to fly here, has recently been gazetted a Pilot Officer in No. 605 County of Warwick Bombing Sqdn., A.A.F.

The Club will be represented at Hampshire Air Pageant by G-EBLW.

THE CLUB AT HOME.

On Sunday, May 1, the Club held an "At Home" day at Castle Bromwich, at which there was a large attendance of members and their friends. A considerable number of visitors were also present from the Women's Engineering Society, the Coventry Branch of The Royal Aeronautical Society, and the Sutton Coldfield and North Birmingham Motor-Cycle Club. Ideal weather prevailed and a very large body of the general public were present during the whole of the day.

The Club were favoured with the presence of eight visiting aircraft as follows:—Mr. Hubert Broad, D.H. Moth, EBNO; Flt. Lt. Crawford, Avro Avian, EROL; Flt. Lt. Openshaw, Westland Widgeon, EBPW; Mr. C. Uwins, Bristol Fighter, EBFU; Flg. Off. Atcherley, D.H. Moth, EBOU; Mr. David Kittel, D.H. Moth, EBMU; Mr. Twemlow, D.H. Moth, EBLR; Mr. Berline, Avro Lynx, EBHT.

The first event was an excellent exhibition of aerobatics by Mr. W. J. McDonough, on the Club Moth, EBLW, followed by an amusing demonstration of a pupil's first solo. Mr. McDonough demonstrated in very convincing fashion the easy manner in which the Moth can be controlled.

Event No. 2 was a race for a Cup presented by the Council to "A" pilots trained by the Club. The competitors were Mr. E. J. Brighton (Moth LW), Mr. J. F. C. Brinton (Moth LT), and Mr. H. J. Willis (Austin Whippet PF). This was won by Mr. Brighton, with Mr. Brinton a close second.

The next event was a handicap race for three Cups presented by the Council open to machines with engines not exceeding 10 h.p. The course was of 10 miles with two laps. The entrants were Flt. Lt. Openshaw (Widgeon), Mr. Twemlow (Moth), Mr. Broad (Moth), Mr. McDonough (Moth), Flt. Lt. Atcherley (Moth), and Flt. Lt. Crawford (Avian). Openshaw started scratch, giving McDonough and Twemlow 1 min. 17 secs. start. The handicapping, which was kindly arranged by Major Openshaw, with the assistance of Mr. St. Barbe, produced a most exciting race and close finish.

After the first lap McDonough was leading with Twemlow second and Atcherley third, but during the second lap Openshaw drew up to second place just before crossing the finishing line. The result was McDonough first, Openshaw second and Twemlow third. Mr. Twemlow, who is a member of the Lancashire Club, flew a very good race indeed.

After this Flg. Off. Atcherley took off in the Genet Moth (OU) and gave a very fine display of aerobatics. His inverted flying and slow rolls were quite some of the prettiest flying that one has ever seen.

Tea was served to some 350 visitors from 17.30 hrs. until dark and two Club Moths, assisted by Mr. Berline on the Avro Lynx, were kept busy giving trial flights.

The thanks of the Club are due to the Auxiliary Air Force Station at Castle Bromwich for an Exhibition of formation flying, and for the opportunity afforded to visitors of inspecting one of the new D.H.9A at close quarters.

(Signed) GILBERT DENNISON, Hon. Secretary.

A PROTEST.

The following letter has been received:—

Sir,—Writing as a member who learnt to fly and qualified for "A" licence at the Midland Aero Club, I wish to protest against the derogatory remarks concerning the Club contained in your issue of the 4th. Your statement that the Club has done a deal less flying than any other Club is untrue.

Moreover, I would point out that during 1926 the following members qualified for "A" licence:—Messrs. King, Knox, Brighton, Swann, Brinton, Jackson, Perry, Miller, Shaw and myself, all of whom are genuine *ab initio* pupils. Three of the above alone have since been gazetted Pilot Officers in No. 605 County of Warwick Bombing Sqdn., A.A.F., one has been gazetted Pilot Officer in No. 603 City of Edinburgh Bombing Sqdn., A.A.F., and one has joined the Reserve of Air Force Officers. A number of other pupils are approaching completion of their training for "A" licence.

In view of these facts, we members of the Club are wondering why you should have singled us out for destructive criticism and consider your remarks are an injustice to our one and only pilot instructor, Capt. McDonough, and our engineer, Mr. Holland. In this connection I should like to point out that we are still using the two Moths originally provided.

(Signed) H. J. WILLIS.

The Bristol and Wessex Aeroplane Club.

[Sec.: C. S. Clarke, Channel Road, Walton Park, Clevedon, Som.]

Report for week ending May 7.

Total flying time 7 mins., made up of one demonstration flip in the Westland Widgeon Mark III, at the Westland Aerodrome, Yeovil.

INTRODUCING AVIATION.

The Very Reverend Father A. Chichester, S.J., Head Master of Beaumont College, Windsor, with Mr. Lacayo, of the Lancashire Aero Club, an old boy of Beaumont, who gave a demonstration on Runnymede. Mr. Lacayo intends to give similar demonstrations at other public schools, with the idea of increasing the arimindedness of the people who are still at school. Judging by the enthusiasm at Beaumont, his task is easy.



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It is not improbable that our first Club-type 'plane will be ordered next week, although it is not decided which of the competing makes is most deserving of the privilege. We also have hopes of providing a nest for a Bristol Brownie in the very near future.

Strenuous efforts to augment our finances are afoot, so that a general exodus of wealthy Bristolians is to be expected. Nevertheless, being optimists, we expect to meet with considerable success.—C. S. C.

The Yorkshire Aeroplane Club.

[Sec.: J. F. Barnes, 39, Swan Arcade, Bradford.]

Report for week ending May 7.

Flying time 27 hrs. 10 mins., consisting of:—Instruction with Mr. Beck, 14 hrs. 45 mins. Solo flying, 9 hrs. 50 mins. Pleasure flights, 20 mins. Tests, 2 hrs. 15 mins.

Messrs. Wood, Clapham, Norway, Wilson, Fielden, M. B. Lax, Mann, Watson, Dawson, Atcherley and Capt. Milburn flew solo, and Messrs. Thomson, Weaver, Batcock, Wilson, R. K. Lax, Watson, Yeomans, Swift, H. Leatham, Briggs, Ambley, Gardener, Oglesby, Miss Watson and Capt. Milburn flew dual with Mr. Beck. Pleasure flights of 10 mins. each were given to Messrs. Wilcox and Hammond.

The rather considerable time shown above for tests was spent by Mr. Beck in going over the course chosen for the competition for Mrs. Robert Blackburn's prize.

Last Monday our Assistant Secretary, Mr. Lindsay, nose-dived into the deck from his Lewis light motor-bicycle and added considerably to his facial appearance, with the result that he is now undergoing a top overhaul.

On Saturday several noteworthy occurrences happened. Dr. Riabouchinsky, a Czech-Slovakian Professor of Aerodynamics, who had been lecturing in Leeds, took off from Sherburn with Mr. Wood as pilot at 2.30 p.m., for Oxford, where he was also to lecture. They landed safely at Oxford at about 4.30 and then Mr. Wood set out on the return journey, but being overtaken by darkness, landed and spent the night at Melton Mowbray.

On Saturday also Mr. Kittel arrived from Stag Lane at 5.30. On being told that Newcastle was still about another hour's journey from Sherburn, he decided to fly over to Harrogate, which he did and returned to leave his machine for the night at about 8 p.m. He intends to return to London to-morrow (Sunday). Also on Saturday Capt. Milburn performed a very successful first solo. Capt. Milburn, who lives at York, received most of his instruction from Mr. Parkinson, of the Newcastle Club, and was a member of that Club. Finding Sherburn more convenient, however, he decided to transfer to the Yorkshire Club, and after arrangements had been concluded between the Clubs, Mr. Beck gave him a little more dual instruction and finally launched him solo.—C. L. E.

The Hampshire Aeroplane Club.

[Sec.: Major R. Ross-White, Hamble, Southampton.]

Report for week ending May 6.

On Saturday, Apr. 30, Mr. Thomson collected our reconditioned G-EBOI from Stag Lane and flew it back to Hamble. He brought with him Mr. McCracken, who had been in London for a week getting his "D" licence, a feat which he accomplished in a wonderfully short space of time.

As we still have the Avro Avian, we managed to push up our flying time for the week to the total of 26 hrs. 10 mins.:—Instruction flying, 11 hrs. 40 mins. Solo flying, 11 hrs. 35 mins. Test flights, etc., 2 hrs. 15 mins. Joy-rides, 40 mins.

The following members had instruction:—Miss Home 25 mins., Messrs. Berney 2 hrs. 45 mins., Cox 1 hr. 10 mins., A. V. Roe 1 hr. 5 mins., Farmer 1 hr., H. R. Grosvenor 45 mins., Waite 35 mins., Parker 25 mins., Dickson 25 mins., Lieut. Kimmins, R.N., 25 mins., Brewster 20 mins., Beagley 20 mins., Morley 20 mins., Dunning 15 mins., Courtney 15 mins., Jayne 15 mins., Butterly 15 mins., Sanders Clark 10 mins., Flg. Off. Overbury 5 mins., Cooper 5 mins., and Bound 5 mins.

Mr. Lacayo (who came down from Manchester to collect an Avian) did 15 mins.

The soloists were E. Wyllie 2 hrs 35 mins., Nicholson 40 mins., Capt. Yeatman 40 mins., Flg. Off. Overbury 25 mins., S. Fry 25 mins., the Hon. H. R. Grosvenor 25 mins., Keeping 20 mins., Shepherd 20 mins., Sanders Clark 15 mins., Ash 15 mins., Lieut. Kimmins, R.N., 15 mins., Doven 10 mins., and Rumble 10 mins.

To this latter list must be added Flt. Lt. Crawford's 4 hrs. 20 mins., when he flew the Avian to Castle Bromwich to represent the Hampshire Club at the Birmingham Rally.

The results of the draw to decide the names of the members who will fly G-EBOI on their Pageant are as follows:—In the Morris Open Handicap, Flt. Lt. Crawford. In the President's Cup Race, Lieut. Kimmins, R.N. In the Wakefield Light Aeroplane Handicap, Mr. Ash. Capt. Thomson will fly G-EBOI in all the above events.

Owing to Pageant activities no flying bookings will be made from to-morrow (Thursday) to Monday, inclusive.

The First Ground Engineer Pilot.

The following letter has been received:—

Sir,—In your issue of May 4, I note that the Tancashire Club put forward a claim that their Ground Engineer, Mr. Chapman, is the first Ground Engineer to go solo. This is not the case as the late and respected J. S. M. Michie obtained his "A" ticket with the London Club and was later gazetted to the Royal Air Force Reserve.

(Signed) O. J. TAPPER, Member, the London Aeroplane Club.

The Course for the Air League Cup.

THE AEROPLANE is informed that the course for the Air League Cup over the smoke-palls of Birmingham, Leeds and Manchester, was decided by the Flying Clubs themselves and not by the Royal Aero Club. The idea was, apparently, that the South was having more than its share of air races during the year and that it would be better to try and raise a bit of enthusiasm in the Midlands and the North.

With this, of course, one thoroughly agrees. Which is one reason why one is not particularly enthusiastic about holding flying meetings at Bournemouth on Bank Holidays when the Aero Club ought to be devoting its spare time and energies to organising Club meetings at the aerodromes of the Clubs which are its chief support.

One is told that Castle Bromwich was chosen as the start and finish of the race as being the most central for all the Clubs to reach, and also to give the Midland Club a chance of running a good display

in connection with the race, thus justifying their existence and possibly making some profit and so improving their finances. In any case, the Royal Aero Club is not to blame this time, and if the Club members competing in the race do get lost in the smoke or crash on hill tops, the R.A.C. can be held guiltless.—C. S. C.

THE PARIS-NEW YORK ATTEMPT.

On May 8, at 05.21 hours, M. Charles Nungesser and M. Coli left Le Bourget on a Levasseur "Marin" biplane (45 h.p. Lorraine-Dietrich engine) in an attempt to fly from Paris to New York across the North Atlantic.

They were sighted over the French coast, near Havre, at 06.48 hours, and a late but unconfirmed report stated that they had been seen over Dungarvan, Co. Waterford.

The weather, which had, up to a few hours before the start, been extremely favourable, changed, and, particularly on the other side of the Atlantic off Newfoundland the weather was reported to be stormy with much fog.

The Boston Navy Yard reported that an aeroplane had been seen passing Portland, Maine, at 14.35 hours, but this was later found to be a U.S. Coastguard seaplane which was later forced to land owing to fog. Another report states that the aeroplane had been seen over Nova Scotia, and following this a whole host of messages made various statements, all of which gave rise to the rumour that M. Nungesser and M. Coli had succeeded in their perilous task.

All these rumours have since been denied, and up to the time of going to press no further news has been received.

The Levasseur "Marin" should be able to float for some days, unless broken up by heavy seas, so there is hope that the aviators may be saved.

THE FLIGHT ROUND THE ATLANTIC.

On May 8 Col. the Marchese de Pinedo resumed his flight from New York on "Santa Maria II.", the new Savoia 55 flying-boat (two 500 h.p. Isotta-Fraschini Asso engines), which had been sent out to him from Italy to replace the original machine which was accidentally destroyed by fire at Roosevelt Dam, Arizona, in April.

He arrived at Boston at 11.15 hours the same day, where he was met by Army and Navy airmen and was greeted and fêted by City officials and the Italian colony.

On May 9 he left Boston for Philadelphia, but was forced down by bad weather at Norwalk, Connecticut.

THE WILBUR WRIGHT MEMORIAL LECTURE.

The fifteenth Wilbur Wright Memorial Lecture of the Royal Aeronautical Society will be given by Dr. Prandtl, of Göttingen University, at 6.30 p.m. on Monday, May 16, at the rooms of the Royal Society of Arts, John Street, Adelphi. The lecture is to be illustrated both by photographs and cinematograph films of the flow of fluids past bodies.

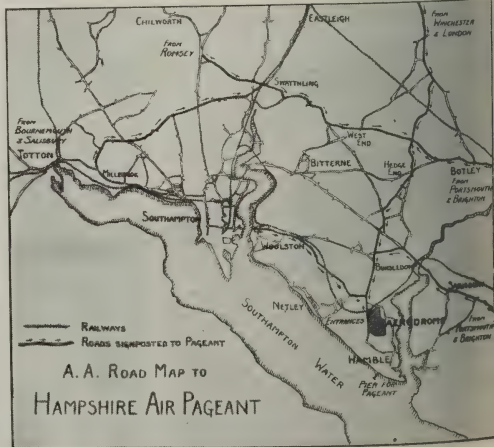
The Wilbur Wright Lecture is an annual event held to commemorate the work of the Wright Brothers.

Dr. Prandtl by his development of aerodynamic theory has given to the world for the first time a satisfactory explanation of how the aeroplane is supported in the air.

SEEING ENGLAND.

One of Imperial Airways' large aircraft will be proceeding from London to Hamble, Southampton, on Saturday next, the 14th, to attend the Hampshire Air Pageant.

The aeroplane will leave Croydon at 9 a.m., and the connecting car will leave Airways House at 8 a.m. The machine will return on Monday, the 16th, leaving Southampton at 9 a.m. and arriving at Croydon at approximately 10 a.m. The single fare will be £1 10s. and the return fare £2 17s. 6d.



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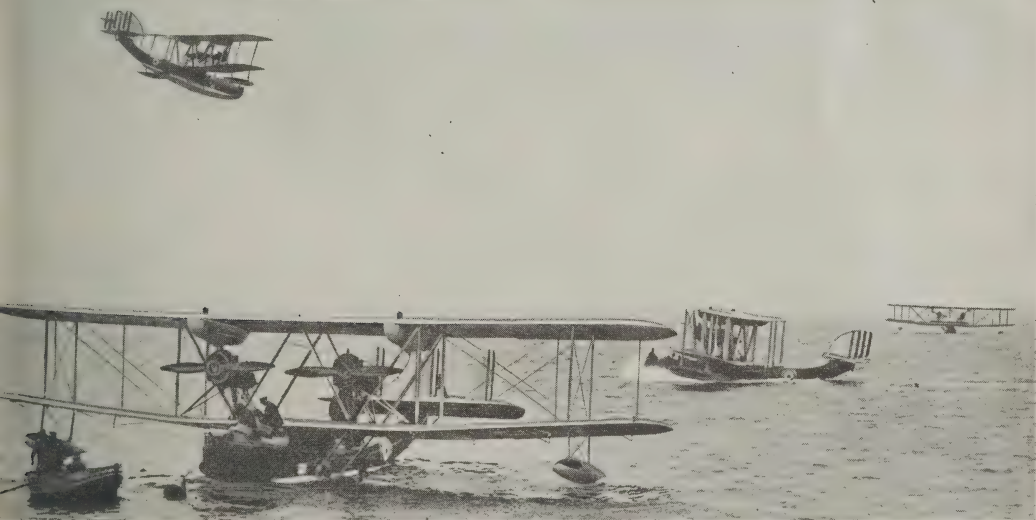
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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day—Monday, 19; Tuesday, 19; Wednesday, 17; Thursday, 20; Friday, 20; Saturday, 20; Sunday, 6.

IMPERIAL AIRWAYS Ltd.:

Paris—London; London—Brussels—Cologne: Machines 46, passengers 464, freight 18 tons.

AIR UNION:

Paris—London: Machines, 361, passengers 79, freight 10½ tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines, 15, passengers 77, freight 2½ tons.

DEUTSCHE LUTHANSAG.:

Berlin—London: Machines 15, passengers 73.

SABENA:

Brussels—London: Machines 11, passengers 23

PRIVATE:

Machines 0, passengers 0.

Total number of trips by British Machines, 46, carrying 404 passengers. Foreign Machines, 75, carrying 252 passengers.

Comparative Figures:

Week ending May 8:

Machines, 121; Passengers, 716; Crews, 201; Total personnel, 917.

Corresponding week, 1926 (General Strike):

Machines, 186; Passengers, 1,085; Crews, 232; Total personnel, 1,517.

Corresponding week, 1925:

Machines, 125; Passengers, 380; Crews, 158; Total personnel, 544.

Corresponding week, 1924:

Machines, 86; Passengers, 211; Crews, 128; Total personnel, 539.

Corresponding week, 1923:

Machines, 109; Passengers, 444; Crews, 177; Total personnel, 621.

Corresponding week, 1921:

Machines, 114; Passengers, 215; Crews, 186; Total personnel, 401.

Corresponding week, 1921:

Machines, 75; Passengers, 230; Crews, 90; Total personnel, 320.

Corresponding week, 1920:

Machines, 84; Passengers, 103; Crews, 87; Total personnel, 190.

Croydon Notes.

S.A.B.E.N.A., the Belgian monopoly air transport company, has resumed the Brussels-London service, using Handley Page Hamiltons, so that it can now be said that the full Summer Services are in operation.

There are now British, French, Dutch, Belgian and German lines in and out of Croydon. When Blieriot flew the Channel one remembers perfectly well hearing people say that they did not believe that there would ever be passenger machines flying the Channel. And yet now we have a number of people attempting to fly between Paris and New York. One wonders therefore how long it will be before there is a line running between a New York aerodrome and Croydon. Nowadays people regard such a service as just as much of an impossibility as they regarded a passenger service across the Channel in 1909.

There was great excitement at Croydon on Monday evening over the rumoured success of Nungesser's flight. M. Bajac, who was flying from Croydon to Paris on a Lioré et Olivier, was recalled by wireless, as he was to take to Paris at 03.00 hrs. the next morning a photograph transmitted by wireless from New York of the arrival of Nungesser.

The New Fokker F.VIII with two French Jupiter IVs has been flown with great success. Its paying load is 5,700 lbs. and its cruising speed is 100 m.p.h. It will maintain its height on either engine alone with full load.

At the present moment, when one particular engine is on and the other is off, there is a tendency to yaw. This is being put right, and then the machine will go on service. One gathers that Jupiter IVs are now being replaced by VIs, when the performance of the machine should be even better.

The old Vickers Vimy, the *City of London*, once the pride of the Instone Air Line, is to end her days peacefully as a summer-house. Mr. Leverton has acquired it and has installed it in his garden. He says that the cabin is just the very thing. So, if people are seen furtively stealing away with portions of Argosies and Handley Pages Mr. Leverton will probably be blamed for putting ideas into their heads

(G. D.).

MAJOR HEMMING'S LECTURE.

The lecture on Aerial Surveying by Major Hemming of the Aircraft Operating Co. Ltd. to the Institution of Aeronautical Engineers will be delivered to-morrow (Thursday) at 8.15 p.m., at the Royal Society of Arts, John Street, Adelphi.

Among those who have now promised to be present are Lord Thomson, Lord Morris (formerly Prime Minister of Newfoundland), Sir Sefton Brancker, Mr. Bertram (Deputy Director of Civil Aviation), Capt. Victor Gordon (High Com-

missioner for Newfoundland, Sir Graeme Thomson (Governor of Nigeria), Sir Humphrey Leggett, Comdr. Kenworth M.P., Mr. Woods-Humphery (of Imperial Airways), Mr. Raham (of the Air Survey Co.), Mr. Sydney Holland (who made the air map of Buenos Aires), members of the R.A.F. School of Photography at Farnborough, and many others directly concerned with air survey work. So the discussion should be particularly interesting.

BY MOTH TO INDIA.

A paper was read before the Royal Aeronautical Society on May 4 by Mr. T. N. Stack, Reserve of Air Force Office entitled "By Light Aeroplane to India."

Mr. Stack's paper was a description of his flight in a Havilland Moth (Cirrus Mark II. engine) from England to India in 1926.

The paper was extremely interesting and amusing, but the story of the flight has already been recorded in *THE AEROPLANE* during the time that it was taking place space cannot be afforded to report the experiences now. However those who were unable to attend the lecture will be able to read the paper in full in the Society's Journal.

Mr. Stack paid a generous tribute to his machine and engine and to all those people on the route who helped make the journey a successful one, particularly the Royal Air Force, who tuned up the two Moths at Malta, Cairo, Baghdad and Karachi, and the Italian Air Force, who entertained them at Pisa, Capua, and in Tripoli.

This was, one believes, Mr. Stack's first effort as a lecturer. He ought to make a habit of it. His voice and manner are good and his humour is delightful. If the A League, or any similar organisation, wants a man to help in making people air-minded, one can recommend Mr. Stack. His persuasiveness would go much further and get more disciples than would the ordinary air-booster's method of trying to make our flesh creep with horrid prophecies of bombing and gassing in the next war.—C. G. G.

AN ADDITION TO THE TRADE.

For some time rumours have been going round to the effect that Sqn.-Ldr. T. H. England, D.S.C., A.T.C., intended to resign from the R.A.F. to join the staff of Handley Page, Ltd.

Sqn.-Ldr. England has commanded No. 22 (Bombing) Squadron at Martlesham since March, 1925, and has been on the staff of the Aeroplane and Armament Experiment Station. He has not been "the officer commanding Martlesham Heath Experimental Station," as reported *The Times*.

He is a brother of Mr. Gordon England, the well-known pioneer pilot, and was granted his Aero Club certificate No. 950 in October, 1914. He joined the R.N.A.S. in 1917, became a flying-boat pilot, served in the Mediterranean and with the Grand Fleet, and after the war served in Iraq.

His ability as an aeronautical engineer and his experience as a pilot should be of high value in his new job as chief technical adviser to Handley Page, Ltd. His many friends will wish him good fortune.—C. G. G.

THE "IN'NARDS" OF THE JUPITER VI.

Readers of *THE AEROPLANE* who give more than a passing glance at the advertisements which it contains will have noticed in the issue of April 20th an advertisement by the Bristol Aeroplane Co., Ltd., describing and illustrating the construction of the crank shaft and big-end bearing of the Bristol Jupiter VI engine.

This advertisement is the first of a series which will describe the salient technical features of this engine, which cannot fail to be of interest to all readers who are interested in the inwardness of engines—whether their interest is severely practical or merely the result of technical curiosity.

PERSONAL NOTICES.

DEATHS.

BLATCHFORD.—On May 3, at Temple Bruer, Lincolnshire, as the result of a flying accident on May 2, Keith Conway Blatchford, Pilot Officer (on probation), R.A.F.

Mr. Blatchford joined the R.A.F. with a S.S. comm. on Jan. 1, 1927, and was undergoing a course of flying instruction at No. 1 F.T.S., Digby.

EWAN.—On May 9, at Canberra, as the result of a flying accident. Flt. Off. S. E. Ewan, Royal Australian Air Force.

MARRIAGE.

GEORGE—BALDWIN.—On May 3, at St. Vincent's Church, Caythorpe. Flt. Lt. R. Allingham George, M.C., to Betty, second daughter of Mr. and Mrs. Reginald Baldwin, Caythorpe, Lincs.

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Edited by C. G. G.

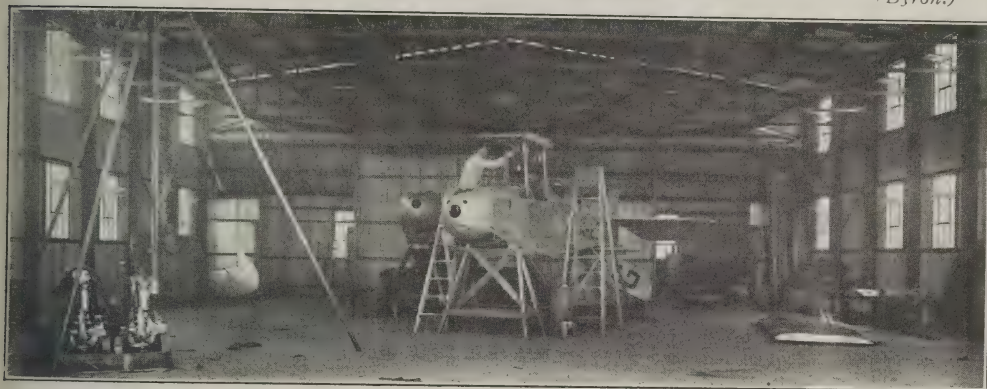
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MAY 18,
1927.

THE AEROPLANE

Incorporating
Aeronautical Engineering

VOL. XXXII.
No. 20.

The Editorial Offices of "The Aeroplane" are at 175, Piccadilly, London, W.1.
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Abroad, 3 months, 8s. 9d.; 6 months, 17s. 6d.; 12 months. 35s. Canada, 1 Year, 8s.
U.S.A., 1 Year. \$8.50c.

ON AIR SURVEYING AS A PROFESSION.

Soon after the outbreak of peace in 1919, when Mr. Winston Churchill was doubling the part of Secretary of State for War and Air and Mr. Holt Thomas and Mr. Handley Page and the Instone Brothers were gallantly trying to run self-supporting air lines to the Continent, Mr. Churchill was approached with a question as to whether the Air Ministry, and/or the Treasury, would subsidise air transport. Mr. Churchill's reply was that Civil Aviation must fly by itself.

There are many perfectly good reasons why air lines, more especially air mail lines, should be kept going by State subsidies. The reasons are precisely those which can be put up in favour of subsidising railways, or at any rate guaranteeing a dividend to the people who put up the money for working capital. And, like those subsidised, or guaranteed railways, years may pass between the first opening of air lines and the time when they become dividend-paying properties. And even if they never pay for their own running they pay the countries which pay for them—by providing Service.

But there are other forms of Civil Aviation which do actually pay for themselves. For instance, ordinary joy-riding, or "gypsy-flying" as it is called in the United States, has been profitable enough from the very beginning to provide a hard-earned living for quite a number of people all over the World. Nevertheless, joy-riding is not likely to make anybody's fortune, and the best that the people who run the joy-riding firms can hope is that some day flying may become so popular that their firms may become public services like any ordinary taxi or hackney carriage service on the road. That, however, is a development of the future. Meantime a joy-ride pilot's life is a dog's life—and worse.

THE THING THAT PAYS.

At the present moment the only form of civil flying which does definitely fly by itself and show a profit, and hold out brilliant prospects for the future, is Air Surveying,—in which

may be included everything from taking a snapshot of a factory or an eligible villa with an ordinary camera from the cockpit of a joy-riding machine all the way to making a complete photographic map of a nation's whole territory.

Of course, in some instances, that would really not be very difficult. For example, the whole of the Republic of Andorra or of the Republic of San Marino could probably be got onto one plate of one of these big new cameras which are designed to photograph whole counties from a height of 20,000 feet or so. But, apart from photographic stunts of that kind, which might be worth doing just for the sake of showing what aerial photography can do, the time is rapidly approaching when there will be far more photographic survey work to be done than all the existing air survey concerns can tackle.

It is in fact not only the one branch of Civil Aviation which already flies by itself, but it is also the one branch in which there are obviously almost immediate prospects of great expansion. For this reason one particularly directs towards the Science of Air Survey the attention of everybody in the Royal Air Force, as well as those sportsmen who are learning to fly for their own amusement either privately or as members of Flying Clubs.

THE OPPORTUNITY FOR THE S.S.O.

The reason why one wants everybody in the Air Force to pay attention to the subject is that air survey work is about the one occupation which offers real opportunities to Short Service officers on leaving the Air Force. And so the subject is of immediate interest not only to the Short Service officer himself but to those senior officers in high positions whose duty it is to do all they can to provide an adequate living for the Short Service officer after he has left the Air Force.

Naturally, the organisers of air survey expeditions when they are looking for pilots and engineers and mechanics would rather take men who are in full flying practice than



ON THE WAY TO THE FRONT.—The Aircraft Operating Co.'s D.H.9 (Nimbus engine) on its way to the survey of the Rhodesian Congo Border Concession.

people who have to be refreshed or taught their job from the start. So, obviously, they would rather have R.A.F. pilots who are well up in the flying and maintenance of the latest types of aeroplanes and engines, and especially those who have been through photographic courses and navigation courses in the Air Force, than ordinary civilian pilots, no matter how skilful they may be simply as pilots.

Also they would naturally rather have engineer officers and mechanics whose ideas as to overhaul and maintenance of engines and the fitting and repair of cameras and so forth are right up to date.

One is quite prepared to admit that there are certain civilian pilots, especially those who have been flying in the out-of-the-way places of the Earth, who would be even more useful on an air survey expedition than the best trained of Short Service officers straight out of the R.A.F.

But the number of those pioneer pilots of the backblocks is very limited, and so is the number of ground engineers and mechanics who have worked with them. Therefore there is bound to be a big demand before long for new pilots and new mechanics for survey work in the wilds.

Incidentally, a good deal of the air survey work will not necessarily be in the wilds at all. A lot of it will be done in the vicinity of quite civilised places for town-planning and detailed mapping of estates in rapidly growing countries where something like ordnance maps already exist. And consequently people who are thinking of taking up air surveying as a profession need not necessarily assume that they will have to spend the rest of their lives in barbarous places. In fact a good deal of the work will be done in and around health resorts, probably in very pleasing climates.

NON-EXISTENT EXPERIENCE.

One of the greatest difficulties with which existing air survey operators already have to contend is the entire absence of people who combine a knowledge of aircraft, photography, and ground surveying in its fullest sense. There are plenty of people who can fly well, there are fair numbers who know a good deal about air photography. But none of them, apparently, know anything about the science on which the everyday work of the Ordnance Survey is based.

Some little time ago one was asked by Major Kingsley, who has done so much flying of all sorts in the Argentine Republic to try and find for him somebody who knew something about aviation and a great deal about scientific surveying and map making. In spite of several paragraphs in *THE AEROPLANE*, which produced numerous applications for the

job, one was unable to find even one solitary individual who could be classed as a trained and experienced surveyor and was also an experienced aviator.

Therefore one strongly recommends Short Service officers in the Air Force, and, for the matter of that, civilians who are learning to fly and hope to make a living out of flying to educate themselves in their spare time as fully as possible in the profession of surveying.

VOCATIONAL TRAINING.

The Air Ministry has an excellent scheme for the benefit of Short Service officers which is known as Vocational Training. The intention of this scheme is to educate these officers in some profession in which they will be able to make a living when they leave the Air Force.

One suggests to the Educational Authorities at the Air Ministry they would be doing very good work not merely for the Short Service officers but for the progress of Aviation and for the expansion of the British Empire if they would organise a special surveying course, to include cartography (which is the Mediterranean word for map-making), astronomy, and all the other sciences which go to the making of a properly-trained surveyor. For, at the present moment no such person exists among those who fly.

THE TROUBLES OF THE PIONEER.

Those pioneers of air surveying who have already done so much excellent work have had to teach themselves their jobs as they went along. And now that their work has expanded they have had to bring into their organisation men of great experience in surveying and map making to organise that side of their business and to co-ordinate the work of their flying photographers with that of their actual map-makers.

When Mr. Ronald Kemp boldly undertook the survey of the Irrawaddy Delta, on which the whole success of air survey in the British Empire outside Canada is based, he knew nothing whatever about map-making and precious little about photography, but he did know how to fly and how to run an aeroplane, and he knew what aircraft could do if they were properly used for the work.

So he got hold of Mr. Durward and Mr. Andrews, who knew something of the photographic side as well as of flying, and then when the business grew he acquired the co-operation of Colonel Ryder, C.B., C.I.E., D.S.O., formerly Chief Surveyor to the Government of India, with the result that now the Air Survey Co. Ltd. is an organisation which is thoroughly sound both on the flying side and on the map-making side.

Similarly, when Major Hemming and Major Cochran-



THE SARAWAK SURVEY.—The Island and Settlement of Sibü, at the junction of the Igan and Rejang Rivers. This town was used as a base by the Air Survey Co. Ltd. during their work in Southern Sarawak.

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Patrick started out on that first survey of theirs to take photographic maps of the Orinoco Delta neither of them knew the first thing about scientific survey, but they worried through by sheer intelligence and, having acquired the co-operation of Colonel Crosthwait, formerly Superintendent of Land Survey in India, the Aircraft Operating Co. Ltd. is also able to run its air survey branch on the best scientific principles.

But the people who did the first photographic maps had to teach themselves everything about the job, even to the developing of negatives and the enlarging and printing of the photographs, besides having to find out all the tricks of flying at a regular height in a straight line over unmapped country, keeping the camera from tilting fore-and-aft or sideways.

One of the finest examples of how sheer determination and diligence succeeds is the photographic map of Buenos Aires which was made three or four years ago by Captain S. H. Holland, who went out to the Argentine with one of the very first British aircraft ventures. He remained there doing taxi work and joy-riding and anything else that turned up. Then he took to air photography. And at last he determined to make a complete photographic map of Buenos Aires.

His machine was an old Armstrong-Whitworth of the type known as the "Little Ack-W.," which was designed by Mr. Frederick Koolhoven in 1914 and cannot have been built later than 1915. His camera was an ordinary Goertz snapshot which he carried on a bracket stuck out at the side of the fuselage.

He flew the machine himself and did the photographing himself, because he said it was so difficult to get anybody else to take the photographs where he wanted them and it was still more difficult to get anybody else to pilot the machine as he wanted it while he took the photographs—on the old principle that, if you want a thing well done, do it yourself.

He used to fly the machine where he wanted it, take his one photograph, and steady the stick with his knees while he hung over the side and changed the plate in the camera in an ordinary changing bag. Then he used to turn the machine round and come back and take the next photograph where he wanted it.

It was a long and laborious business. In fact it took him a year to do it, flying when he was not wanted on some other job. He knew nothing about photography, so he had to teach himself all about enlarging and then he had to learn all the tricks of getting his prints of the same colour. But he did the job. And to-day that photographic map is, one believes, accepted by the Argentine Government as their official map of their capital city.

One is glad to say that Capt. Holland's perseverance has since met with considerable success, and there is such a demand for his work that he is now in England acquiring proper equipment with which he and Major Kingsley, with whom he has joined forces, may deal adequately with air survey work in the Argentine.

When, some day, air survey work is regarded as the most advanced branch of surveying, doubtless these pioneers will be recognised, probably the Surveyors' Institution will make them Honorary Fellows, or something of that sort, but one is glad to be able to place on

record here and now the historical fact that they are the founders of British Air Surveying.

THE POSSIBILITY OF AIR SURVEY.

The possibilities of air survey are as nearly infinite as anything can be in this finite World. Canada has shown us, as was duly chronicled in last week's issue of THE AEROPLANE, the immense possibilities of aerial map making in unexplored country. The Canadians have already photographed 250,000 square miles of their own territory. That is an area five times the area of Great Britain. At the speed with which the Canadian mapping has been done shows that a complete photographic map of Great Britain could be made in a year with a comparatively small number of men and machines.

Probably nobody will want to make a complete photographic map of Great Britain for many years to come. But there is no doubt that in due course the old-fashioned pen-and-ink Ordnance Survey map will ultimately give place to photographic maps. People who travel about the country by car, instead of buying sheets of black and white with red lines on them to show the main roads, will buy photographs of the area in which they tour.

Thereafter our roads will become so unpleasant to the everybody who can afford it will obey the behest of the Havilland advertisement to "Get Off Those Crowded Roads" and will go touring by air. Then, of course, the photographic map (duly touched up to bring out salient facts) will be even more useful.

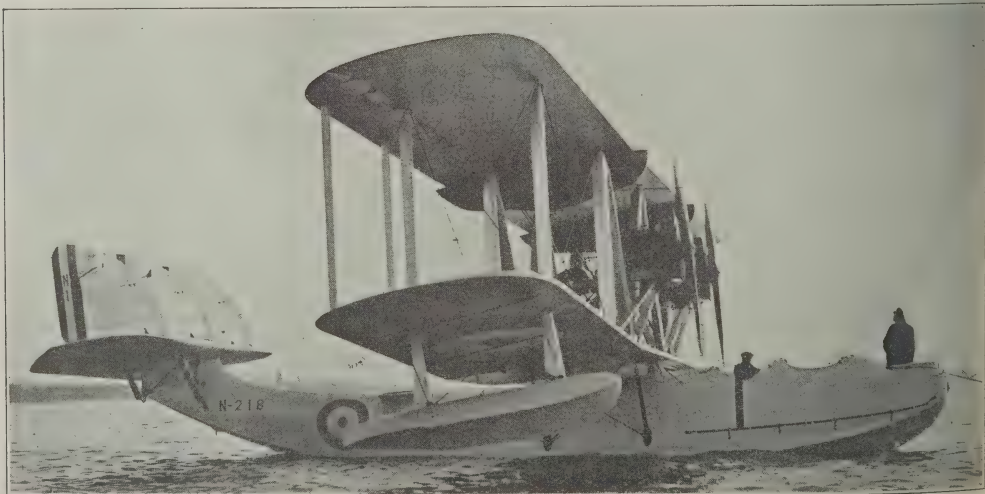
THE NEAR FUTURE.

Long before then there will be air survey parties at work all over the British Empire. And the Air Survey Co.'s pioneer work in the Far East will be regarded much as we now regard the great exploit of those who drove cars from London to Brighton in 1896.

Instead of having reconditioned wartime aeroplanes with holes in the bottom for cameras we shall have special multiple-engined air survey machines, such as the Aircraft Operating Company have already designed for their Rhodesian survey. Such a machine will almost fly itself and the camera will do everything merely by pressing a button, as in fact the standard Eagle camera does to-day. Everything will be delightfully simplified.

But the air surveyor's job will still have the charm of exploring unknown country. And the air surveyor will have the inspiration of knowing that he is helping to make use of the waste places of the Earth.

By way of placing on record at this stage of development what is actually being done at the moment they follow hereafter sundry articles concerning air survey. Major Hemming's lecture to the Institution of Aeronautical Engineers on Thursday last, May 12, gives an excellent review of what is actually being done. The articles by Capt. W. H. Sayers on the work of the Air Survey Co. Ltd. in the Far East and on Canadian air survey methods provide further useful information. One hopes that all these will be equally useful to those who may be thinking about making air survey their profession and to those who can make use of air survey.—C. G. C.



PROGRESS.—The new Supermarine Southampton (Napier Lion engines) with standard wings and all-metal hull. She is 500 lbs. lighter than a similar ship with a wooden hull, which means that after allowing for an extra 400 lbs. added to a wooden hull by soakage after a month in the water, she will be 900 lbs. lighter on service. The hull metal is treated electrolytically and is practically proof against corrosion.

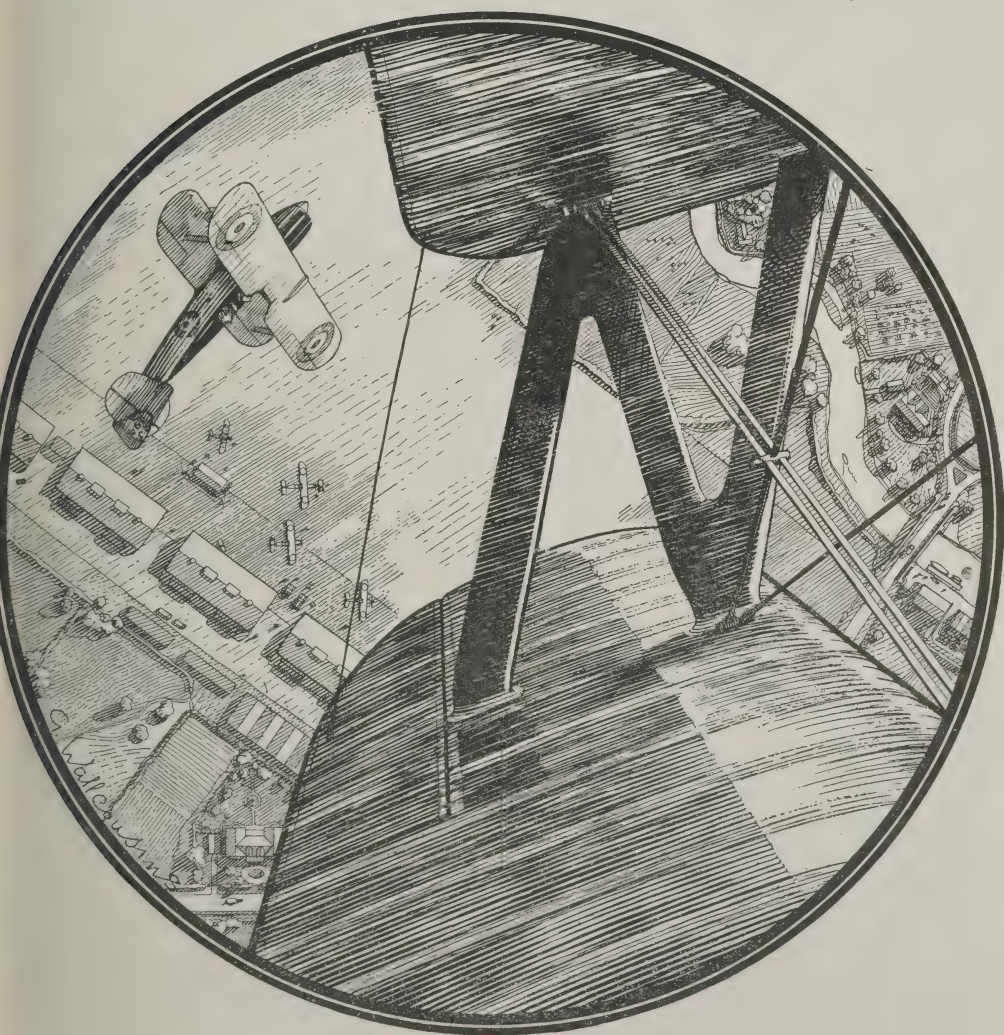
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COMMERCIAL AIR SURVEYING.

The lecture delivered by Major H. Hemming to a goodly audience under the aegis of the Institution of Aeronautical Engineers at the Royal Society of Arts on May 12, was one of the most interesting ever delivered in that famous room. And it was of considerable historical interest for two reasons. Firstly because it laid down definitely and clearly the commercial uses of Air Survey just at the moment when air surveying is becoming very prominent in the World, and secondly because there happens to be a conference of Colonial Governors in London at the moment and a number of these eminent officials attended the lecture. Judging by the remarks of several of them afterwards, they were both enlightened and convinced as to the value of Air Survey and so the lecture must have done good work which will produce definite business in the future.

One regretted very much to see that none of our prominent aircraft manufacturers were present. One has no means of judging whether they stayed away because they thought that they could receive no enlightenment from a lecture on air surveying or whether they stayed away because the majority of them are members of the Royal Aeronautical Society and therefore did not desire to fraternise with the Institution of Aeronautical Engineers.

To those who were not present, one says unhesitatingly that they made a great mistake in being absent. They would have learned quite a good deal from Major Hemming's lecture, though perhaps they may be able to learn as much from Major Hemming and other air surveyors personally in the future. But they also missed the opportunity of seeing and hearing those Governors and other officials of Colonies for whom somebody's aircraft, possibly of American make, will have to work in the future.

Colonial Governors, the pro-Consuls of the British Empire, are men who are well worth studying, both as individuals and as a class, and their presence at Major Hemming's lecture was interesting and instructive.

Apart from the people in the Trade, one did not notice any of the other prominent personalities of the Royal Aeronautical Society among the audience. This struck one as being rather a pity because a meeting of this sort, concerned with a subject which was itself neither aeronautical science nor aeronautical engineering, but important to both, seemed to afford an excellent opportunity for members of both the R.Ae.S. and the I.A.E. to meet on neutral ground in a friendly way without jealousy.

If the projected amalgamation between the two organisations is to be a success, something in the way of fraternisation is advisable beforehand. And one cannot help feeling that the ostentatious way in which members of the R.Ae.S. avoid meeting members of the I.A.E. is hardly likely to promote brotherly love. In this particular instance it looked very much as if the R.Ae.S. stayed away out of pique because the I.A.E. had secured the presence of so many distinguished men.

The following is a condensed summary by Capt. W. H. Sayers of Major Hemming's paper. Although all the more

important points have been included, those who are interested in the development of real commercial flying will do well to acquire the full report of the meeting which will appear in due course in the Institution's journal.—C. G. G.

THE PAPER.

Major Hemming said that one of the few benefits we had derived from the War was the development of aerial photography to a stage where it could be of great value for exploratory and mapping work in the Empire. The authorities responsible to the Government for the development of Civil Aviation had failed to recognise this, and had concentrated on air transport. So private enterprise had to develop this side of aviation. [It is not clear whether Major Hemming includes this latter statement among benefits—but it pretty certainly is one.—W. H. S.]

The Canadian Government was the first in the Empire to realise the value of the aeroplane and the air camera for opening up the unmapped areas of their Dominion and their policy in Civil Aviation had been to concentrate on the development of air surveying and forest patrols. Their policy had been justified. Many thousands of square miles of Canada had been mapped, aeroplanes had saved many millions of dollars in controlling the forest fire menace, Canada possessed the finest Air Survey Department in the World, and a number of successful private air survey companies had come into being as a result of the Canadian Government's policy.

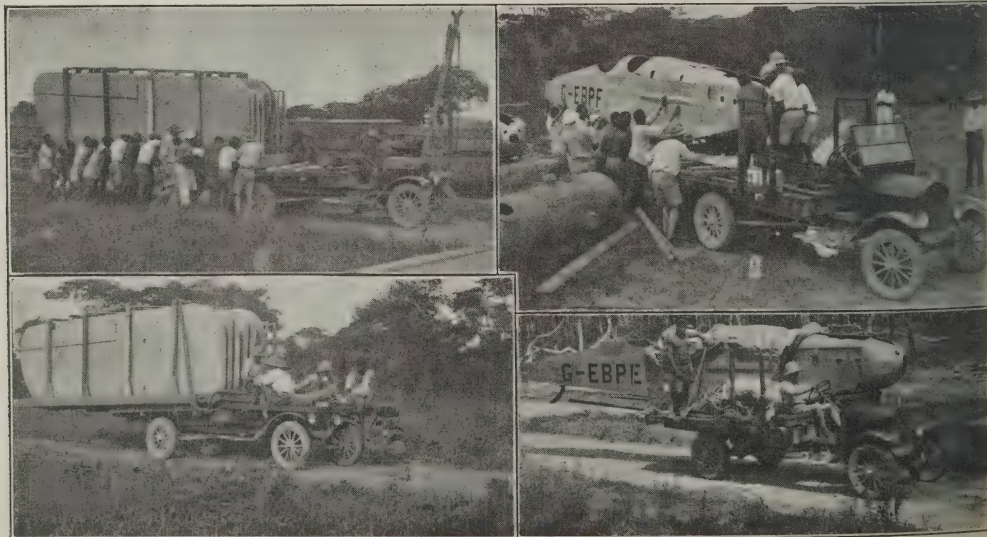
This Canadian policy had been based on foresight and had been soundly administered. The Government bore the expense of the early pioneer work in air surveying, and as soon as it had developed to a self-supporting stage they had encouraged the formation of private companies to whom they let contracts. Thus they had assisted commercial development without having to pay subsidies, and without imposing Government supervision, which is always a deterrent to enterprise and initiative.

Canada had taught us much about air survey, but we had failed to benefit by the lesson as we might have done. Canadian support of aerial survey, coupled with development of the art in the United States, led to quick development of aerial cameras and air survey aeroplanes on that side of the Atlantic. With one exception the aircraft and instrument trades of this country failed to grasp the Canadian requirements.

To-day the R.C.A.F.'s standard camera was of American make, and with the exception of the machines built by the Canadian branch of Vickers Ltd. and some British machines of War-time construction, most of the aeroplanes used for survey in Canada were American built.

The "Eagle" Camera had now been produced in this country and in Major Hemming's opinion was a great improvement on the American (Fairchild) camera. But the Americans, so far as Canada went, had got there first.

While Canada had pursued this policy of air survey development, the Home Government had concentrated on air transport, assisted by subsidies, and air survey had been left



ON THE WAY TO THE FRONT.—The Aircraft Operating Co.'s two D.H.9s (Nimbus) on their way to the Rhodesian Congo Border Survey.

to carry out Mr. Churchill's dictum that "Civil Aviation must fly by itself." It had proceeded to do so.

Shortly after the War a British company had sent out an expedition, under the command of Major Cochran-Patrick, to the Orinoco Delta, where some useful survey work was accomplished. A great deal of private money was lost, through no fault of the survey company, and much valuable experience gained. Although no financial assistance had been given by the Government to this expedition, individual members of the Air Ministry, in particular Wing Cdr. Laws, went out of their way to help the Company concerned.

At the time of this survey expedition valuable research work into the problems of aerial survey was being done at Cambridge by Prof. Melvill Jones and the late Major Griffiths. This had been of great value, and it was due to the combination of experience gained in Venezuela and British Guiana at Cambridge that the contract for the Irrawaddy Delta Survey had been secured by Mr. Ronald Kemp.

The Irrawaddy Survey was a complete success, and it had been followed by other contracts, and to-day both the British companies engaged on this type of work had plenty to do.

Air surveying should be thankful to Mr. Churchill for his ruthless dictum as it had ensured for it a hardy education. The early days of the aerial surveyor were difficult. Official financial support was not received, only plenty of good advice from those in official positions. The ground surveyor, perhaps because of undue optimism in the airman, was antagonistic, and the business man, provided he was not asked to pay anything, was polite, but did not treat the matter seriously.

To-day the airman and the surveyor were working in close co-operation, and the Air Survey Committee had largely to be thanked for this state of affairs. This Committee had as its Chairman Col. Winterbotham, it included representatives from the Admiralty, War Office and Air Ministry. Wing Cdr. Laws, Capt. Tymms and Capt. McCaw were members.

This Committee had not been formed to assist Civil Aviation, but to study air survey for military purposes. It had nevertheless become a sort of Fairy Godmother to the companies interested in Air Survey.

The Department of Civil Aviation had also given great assistance. Their records of flying conditions in different parts of the World were always available, Air Vice-Marshal Sir Sefton Brancker, Civil Aviation's most energetic propagandist, had spread abroad the gospel of Air Survey, and through the interest of Sir Samuel Hoare, the firms engaged on Air Survey had been given an opportunity of demonstrating their work to the delegates to the Imperial Economic Conference, 1926. This demonstration had already borne fruit.

The Press generally had been sympathetic and helpful towards Air Survey, which could not have progressed without that help. It was one thing to have a service of definite value, another to sell that service, especially if it were of a new and relatively unknown kind. The Press records of definite achievement by aerial surveying had helped greatly in selling Air Survey.

A very important part in the development had been played by the British Aviation Insurance Group. Insurance was very important, and although he (Major Hemming) would not for one moment admit that their insurance rates were low, quite the contrary, the fact that the Insurance Group had been able to quote a rate at all said a great deal for their enterprise and faith. They had frequently covered air survey risks in parts of the World outside of their knowledge and experience, and in which they had no agents to look after their interests.

APPARATUS AND INSTRUMENTS.

Up to the time when the Ordnance Survey Revision contract was carried out (1925) all British (except Canadian) air surveys used the old War-time L.B. plate camera. The development of a satisfactory film camera had permitted of a marked reduction in cost. The suitability of the film camera had been proved in the Ordnance Survey Revision contract, which was made with an F.8 camera, lent to the Aircraft Operating Co. Ltd., by the Air Ministry. The Eagle camera, a commercial edition of the F.8, was now available, and was being used on the Northern Rhodesia Survey.

Much skill and ingenuity had been expended on the design

and manufacture of instruments to make possible accurate navigation on air surveys. It was believed that most of the problems to solve which these instruments had been devised would be better solved by the production of aircraft specially designed for the purpose.

Practical and commercial reasons made it desirable that air surveying should be made a simple operation. It should not be necessary to steer through optical sights, which were at present useful to overcome partially the bad view given by the ordinary tractor aeroplane.

It was hoped shortly to build a special survey aeroplane, and the improved view, higher ceiling and increased immunity of such a machine from forced landing risks should materially reduce the costs and increase the output of an air survey undertaking.

It was probably safe to say that the problem of straight and accurate flying was solved. But if, as Flt. Lt. Reid expected, an instrument could be made to ensure that the camera axis was truly vertical at the moment of exposure, it would help enormously.

There were still many problems to be solved in connection with the ground side of aerial survey. One of the biggest of these concerned the development of practical methods of mapping from air photographs from the theoretically possible methods.

Some German authorities had given great attention to contouring from aerial photographs and to the production of machines which would plot detail from pairs of overlapping photographs. These instruments were marvels of mechanical and optical skill, but they were not the instruments they needed.

Experiments made for the Air Survey Committee by Lt. Hotine at Arundel proved that contoured maps on a large scale could be made from overlapping vertical photographs using a stereoscope and a certain number of fixed heights established on the ground. Also a promising instrument for contouring was now being made in this country.

As there was plenty of work within the Empire which could be done by the present tried methods of air survey, Major Hemming considered it wise to wait for further developments of this nature. There was a great temptation to try and run before we could walk in Air Survey, but simplicity was going to be the key to success where instrumental methods of air survey were concerned.

THE PRESENT POSITION.

Air Surveying to-day was commercially self-supporting. Its greatest claim as a commercial service was that in the unmapped regions air-mapping could be undertaken far more quickly and far more cheaply than could mapping from the ground. But even in this country, which had the finest survey in the World, contracts for aerial survey were regularly undertaken for official or commercial concerns to the customers' satisfaction.

Evidence of the value of air survey was given in an unquestionable form by the reports from Canada, Burma and other places showing that in combined speed, accuracy, and cheapness, aerial survey was superior to ground methods.

THE COST OF AIR SURVEYS.

Quotations for the cost of aerial survey were liable to be deceptive unless full details of the basis of the quotation are given. The cost would depend on whether the ground control and the mapping work are included, on the accuracy required, on the nature of the ground control available, on the nature of the country, on the weather conditions and so forth. To prepare an estimate for a given survey it was often necessary to send out an expert to reconnoitre the scene of operations—which might be a long and expensive business.

The size of the area to be covered had an important bearing on cost. The bigger the area the less the cost per square mile. The Irrawaddy Delta Survey of 1,350 sq. miles cost about £19 10s. per sq. mile. Since then costs had fallen considerably. For the survey of an area of 60,000 sq. miles in jungle intersected by rivers to make a map to 1/20,000 scale, the probable contract price to-day would be £3 17s. to £4 per sq. mile, ground control and mapping excluded, and allowing two seasons' work for the whole of the photography.

In this country mosaic maps cost from £7 to £15 per sq. mile depending on the size of the area and the scale of the map. Such surveys were most valuable for town planning and engineering schemes, and were likely to find an increasing application.

THE BEGINNING.—The first get-off by the Aircraft Operating Co.'s D.H.9 (Nimbus) piloted by Major Cochran-Patrick, at N'Changa.



AND THE FUTURE.

The future of air surveying seemed very promising and demand was likely to increase. Up to the present most contracts had required the customer to provide aerodromes and ground control, but there was now a tendency for the Air Survey firms to take over such work themselves, and finally the Survey Co. would be able to arrange all local contracts for preparing aerodromes, laying down controls and making the maps.

For the survey now being made in Northern Rhodesia the Aircraft Operating Co. were sending out their own staff to fix ground control points. The ground party would use a specially designed wireless set to receive time signals, and with these would obtain astronomical "fixes."

In connection with this particular survey, Rhodesian Congo Border Concessions Ltd. had already constructed a main aerodrome with shed and workshop, and 39 emergency landing grounds in the heart of the African bush, and a further 96 landing grounds have been planned. As however it was hoped that the special survey aeroplane would be available before the contract was completed, work in these further grounds had been suspended.

As a conclusion to the paper a large number of exceedingly fine lantern slides of aerial survey work were exhibited.

THE DISCUSSION.

SIR WILLIAM CLARK, K.C.S.I., C.M.G. (Controller of the Dept. of Overseas Trade), opening the discussion, said that as the newly developed countries of the World grew less dependent for their manufactured supplies on the older countries our own old-established industries tended to lose trade. We therefore must seek to develop these newer industries, made possible by the advance of science. Air Surveying was one of these. We should take off our hats to those enterprising firms who opened up new industries of this type.

There were plenty of openings, particularly in the Empire, for new commercial developments. In undeveloped countries new transport facilities were invariably followed by increased trade, and Air Survey was going to help enormously the provision of new transport development.

LORD THOMSON (formerly Secretary of State for Air) said that a self-supporting commercial flying enterprise was like water in a desert to an ex-Secretary of State for Air. Sky-writing was the only example of this which he had encountered while in office, and he had been told that it was alone in this respect. He was very surprised that air surveying was self-supporting in view of Major Hemming's figures for cost. He had served 20 years ago on the Niger Boundary Commission in a dispute with the French, with a German arbitrator, and his own mess bill, what with conciliating the French and squaring the arbitrator, must have exceeded the £4 per sq. mile quoted by the author. He had seen the work done at Cambridge, and though the authors fancied themselves their work did not convey the vivid impression given by Major Hemming.

SIR GRAEME THOMSON, K.C.B. (Governor of Nigeria), was afraid Major Hemming must regard him as a bit of a fraud. He had induced the lecturer to visit British Guiana to see what could be done as regards an air survey, but had eventually to tell him that funds were not available. He had since then got Major Cochran-Patrick to visit Nigeria to look into the possibility of surveying the Niger Delta. This was practically impossible to survey by ground methods, but could be done from the air. Here again he had not the funds to carry out the job, but he would certainly use air survey as soon as the funds

could be obtained. He was convinced that aerial surveying was going to be of the greatest use in developing our tropical dependencies.

AIR VICE-MARSHAL SIR SEFTON BRANCKER congratulated the I.A.E. on holding this meeting while the representatives of the Colonies were in London. He was glad to hear that his propaganda for air surveying was appreciated. He had tried to sell Air Survey, but it was difficult to sell anything if you couldn't quote for it, and to-night was the first time he had heard a price for this work. The lecturer seemed to throw mud at the Air Ministry for supporting Air Transport and neglecting Air Survey, but the policy seemed to have been good for Air Survey. The shares of Imperial Airways seemed to be suffering from the blight of Government help. But we had to help Air Transport, and there was no need to help such a flourishing industry as Air Survey. He congratulated Major Hemming, Mr. Kemp, Maj. Patrick and Mr. Alan Butler on their good work.

We owed a great debt to Canada for leading the way in this work and making it a triumphant success. A good deal had been said concerning the use of American equipment in Canada. This was not surprising. America was next door, and had the idea of "Service" and was full of ginger. America was perhaps apt to try to run before it could walk, but it went ahead with new schemes, and produced something that would work perfectly. But we now had a chance of pulling up. People seldom treated aviators seriously, but Col. Ryder and Col. Crosthwaite, leading surveyors, had the wisdom to do so.

He felt that a boom in air surveying was at hand, and he would advise those representatives of the Colonies who were present to get in their orders quickly before the air survey firms were too busy to take them.

He was horrified at the 96 landing grounds that were contemplated for the Rhodesian survey. He thought they ought to have got over the need for such things by now. Aeroplanes should be in the air, not on the ground.

He referred to Lord Thomson as the Minister who had first backed Civil Aviation. He said that the absence of an aeroplane had prevented him from visiting Northern Rhodesia.

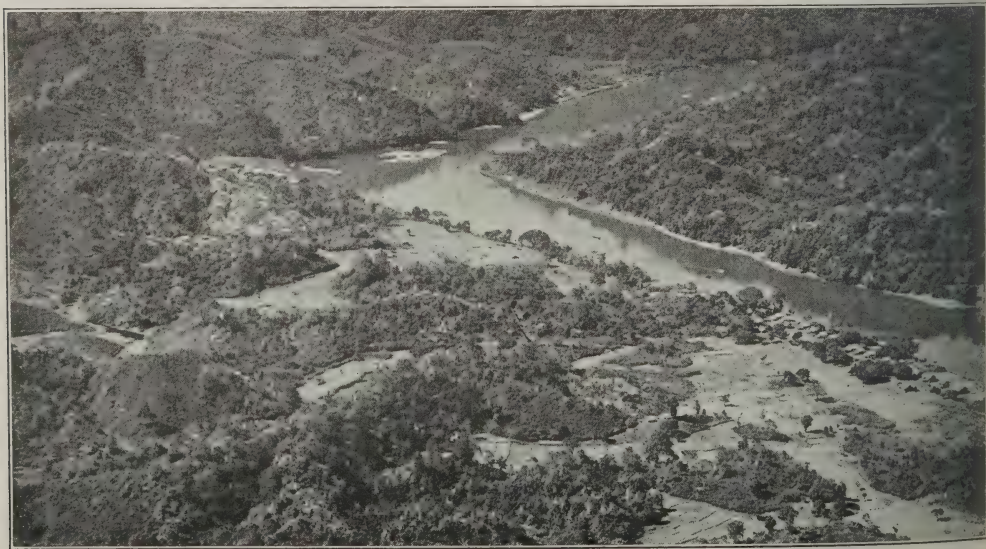
BRIG.-GEN. SIR GORDON GUGGISBERG, K.C.M.G., D.S.O., R.E., Governor of the Gold Coast, said that forty years ago as a very young subaltern he had attended his first aeronautical lecture, and had had pointed out to him a small number of inoffensive looking balloon "cranks." To-night he attended his second aeronautical lecture and observed a number of people of very similar appearance. As a member of a tribe now nearly as extinct as the dodo—the ground surveyor—he was firmly convinced of the enormous future for air surveying. But what any given Colony could afford to do depended upon what was to be done. In the Gold Coast they had just about completed their ground survey, but when the time came to revise that survey aeroplanes would certainly be the best instruments to use.

They had tried to survey the Niger Delta (60,000 sq. miles) in 1912-14. They had spent £1,500,000 in straightening the railway to Coomassie, and air survey would have been a great help.

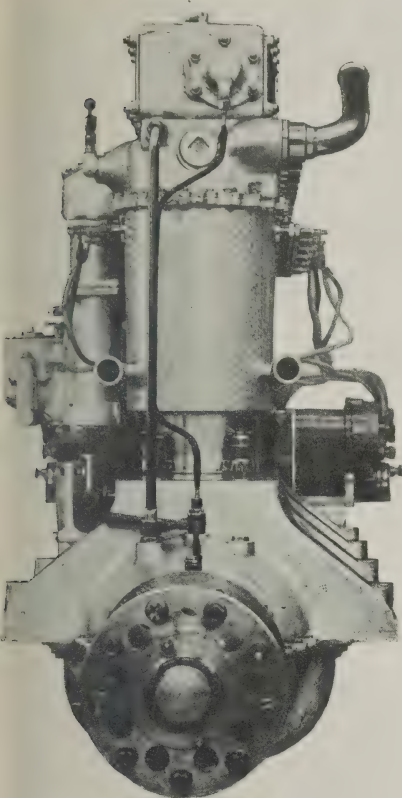
MAJOR D. A. HUTCHINSON, R.E. (Ordnance Survey), said that the most interesting point to him as a surveyor was the fact that a private civil aviation firm had been needed to teach both Governments and industrial concerns that a map was the first essential to development of new areas.

In regard to the experimental revision from the air of the Ordnance Survey, they required accuracy of position to within two feet. Their accuracy had not been so successful as they had hoped. The air survey had greatly reduced the time which had to be spent on the ground, but had in this case increased the time taken in plotting.

They had used no special instruments for plotting from air photographs and had had to improvise methods. A lot of work would always have to be done from the ground. The air photograph gave all the detail, but it did not give names, and they had to have these



THE CHITTAGONG SURVEY.—The Karnaphuli River and Chittagong Hills, photographed by the Air Survey Co. Ltd. in the course of their recent contract.



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COL. C. C. H. RYDER, C.B., C.I.E., D.S.O., R.E. (The Air Survey Co. Ltd., late Surveyor-General of India), said that after 36 years of ground surveying he had taken to directing mapping from aerial photographs, and was a firm believer in the future of this business. Aerial surveying would always need the aid of the ground surveyor, but there were vast areas in the Colonies where survey by other methods than from the air were impracticable.

When Burma wanted the Irrawaddy Delta surveyed, he, as Surveyor-General of India, did not know how it was to be done. It would have taken a large ground staff several years, and by the time the ground work was over all those employed would have been either dead or saturated with fever. The air work was completed in four months and nobody got fever over it. It gave better accuracy than they could have got from the ground, and detail which the ground survey could never give.

Those who knew India would know what the settlement surveys meant. The settlement survey partly descended on a village like a swarm of locusts. If a villager refused to bribe them to show his settlement area as smaller than the truth he was likely to suffer in one or another way. They could make settlement surveys by air without the inhabitants' knowledge—and anyway the air camera could not be bribed. This meant that half India was open to Aerial Survey for this alone.

To get costs down they must have large areas to deal with. Air Survey had so far suffered by having to do a lot of small jobs in different places.

COL. H. L. CROSTHWAITE, C.I.E., R.E. (late Chief of the Land Survey of India), thought that to attempt development before mapping was putting the cart before the horse. He was surprised to hear that there was difficulty in finding funds for Air Survey, for such survey could be made to facilitate the collection of revenue. He had heard of a case in an out-of-the-way district in America, where the owner of an estate objected to the assessment of his land, which was, so far as he knew, unmapped. He represented that it was inaccessible and devoid of communications in support of his objection. But the

authorities produced air photographs, and showed that his estate had a good stream running through it and was close to a decent road, and his assessment was not reduced. Air Survey would facilitate the collection of revenue, and would provide its own cost in many places.

MAJOR HEMMING, in reply, said that a load had been taken off his mind because nobody had shot at him during the discussion. He had expected to be asked all sorts of awkward questions, but instead everyone seemed to agree that air survey was a very valuable service. He would suggest to the Colonial Representatives present that they could reduce the costs of air surveys by arranging for co-operation amongst themselves. If, for instance, all the West African Colonies could get together and arrange for a scheme of development survey the cost would be much less than if each of them were to be treated separately.

As to Sir Sifton Branner's dislike for large numbers of aerodromes, he said that when the Rhodesian contract was made they had not got the special survey aeroplanes and had to get on as best they could with the old D.H.9. As their customers had plenty of cheap labour available, the use of this machine together with plenty of emergency landing grounds was the best way of doing it. They hoped now to have their special machine in time for part of the contract, and therefore had huzz up the provision of aerodromes.

MR. NORMAN HULBERT, Hon. Sec. of the I.A.E., in thanking Sir William Clark for taking the chair, and referring to his efficiency, suggested that when he was "axed," in the demolition of his Department, he should devote himself to Aviation for Aviation's good.

Among those also present were:—Col. N. Belaiew, Mr. F. G. L. Bertram (Deputy Director of Civil Aviation), Col. C. J. Bishop, G. E. F. Boyes, Mr. M. L. Bramson, Mr. Alan S. Butler, Sir H. Byrne, K.B.E., C.B., Col. Ivan Davson, Col. Ivo Edwards (Technical Adviser, Directorate of Civil Aviation), Brig.-Gen. G. S. Elliot, Capt. A. T. Gladstone, Gen. A. Guidoni (Italian Air Attaché), Maj. F. B. Halford, Lieut. Hotine, Capt. A. G. Lamplugh, Mr. W. O. Manning, Major R. H. Mayo, Mr. T. P. Mills, Mr. J. N. Oliphant (Conservator of Forests, Honduras), Sq. Ldr. W. H. L. O'Neill, M.C., Brig.-Gen. Sir C. Delmé-Radcliffe, Mr. F. P. Raynham (of the Air Survey Co. Ltd.), Mr. F. C. W. Robertson, C.M.G., Capt. W. H. Sayers and Capt. Ward.

THE WORK OF THE BRITISH AIR SURVEY FIRMS.

There is at present to be found at the Air Ministry (Gwydyr House, Whitehall) a very interesting exhibit dealing with air survey. This exhibit has been organised jointly by the Air Survey Co. Ltd. and the Aircraft Operating Co. Ltd., for the information of delegates to the Colonial Conference now being held in London. But as with the similar exhibit of last year, given at the time of the Imperial Economic Conference, members of the public are free to visit it.

Two rooms—one occupied by the Air Survey Co. Ltd. and the other by the Aircraft Operating Co. Ltd.—have been devoted to this purpose by the Department of Civil Aviation, and these contain a series of aerial photographs and aerially produced maps which cannot but prove interesting even to the least air-minded of mortals.

THE AIR SURVEY CO. LTD.

In the exhibit of the Air Survey Company are to be found a number of specimens of mosaic maps from the survey recently made by this firm in Sarawak. At the first glance the average onlooker might assume that much of Sarawak must be a kind of second edition of the Irrawaddy Delta, for the most obvious features of the aerial landscape are meandering water channels with areas of dense vegetation between.

Closer examination however will show that there is a good deal more than this in these mosaics. Most of the river banks are bordered by cleared strips, and have along them at intervals huts and in some cases quite extensive villages.

These cleared areas are cultivated, or in course of cultivation, and really close investigation will show quite marked differences in the nature of the crop on them. New rubber plantations have characteristics which distinguish them unmistakably from mature rubber plantations or from other crops, and so on.

Naturally the uninformed observer—however acute—will not be able to identify specific crops unless he is instructed by an expert in the subject, but when once the characteristics of particular types of growth are known there is no difficulty in recognising them—even on the scale of a little less than four inches to the mile. With the aid of a magnifying glass it is certainly possible to count the individual rubber plants in a new plantation.

In the denser jungle growth the mosaic seems to give little definite information beyond the fact that the growth is thick. To the expert eye, however, one is given to understand, this apparent monotony is full of information and an opportunity which was given to the writer of examina-



THE SARAWAK SURVEY.—Kuching, the capital of Sarawak, photographed by the Air Survey Co. Ltd.

ing the overlap of pairs of consecutive photographs with a stereoscope, showed that the information is undoubtedly there.

This method of examining overlaps stereoscopically enormously exaggerates the apparent differences of height of objects on the surface. A hut probably six to eight feet high takes on the appearance of a factory chimney, and a tree a few feet higher than its neighbours seems to tower above them, and in consequence of this exaggeration detail which would probably escape visual notice from the air becomes strikingly obvious.

In some ways, therefore, these mosaic maps are misleading. There is so much detail, and on so small a scale, that the ordinary observer fails to recognise it. But the detail is there, the trained man can recognise it, and can select such of it as he needs for mapping purposes. However much of it he may neglect to embody in his map, it remains on record in the photograph. If it is required at a later date, or for another purpose, it is there.

This Sarawak survey has features in common with that of the Irrawaddy Delta survey. Surface transport is possible only along waterways, and only here has it been possible to fix ground control stations. The method adopted for covering the district was to fly round a section of the area, following waterways along which controls could be fixed, and then to cover the interior of the loop by the ordinary "stripping" process, each strip beginning and ending on the controlled loop.

The first process in making the mosaic is to fit the photographs taken round the loop to the control points, thus giving an accurate outline into which the strips are fitted.

It has been found that unrectified mosaics made from the cross strip photographs—even on the longest strips flown—could be relied upon to be accurate in scale as to total length, but that they were apt to be noticeably curved.

To make a satisfactory mosaic from these curved strips a method originated by Prof. Melville Jones at Cambridge is adopted. The whole series of prints from one strip, untrimmed, are pinned or clipped to a strip of ordinary elastic. This strip is then pinned at each end to the control loop so that the end control points fit.

When the whole of the cross strips are thus flexibly mounted in place they are pulled about laterally until the best possible "match up" between adjacent strips is obtained, the prints are pinned in place, and this preliminary mosaic is used as a guide to the trimming and fitting together of the prints for the final mosaic.

At the Air Survey Company's drawing office at 39, Grosvenor Place one was recently shown some of this mosaic-making process in progress.

Although it is simple enough in principle, it is by no means a small job. As a preliminary a drawing table—

something like 30 ft. x 20 ft.—was built, and on this a skeleton grid for the whole area was marked out in two mile squares to the scale of the desired mosaics. It was found quite impossible commercially to obtain straight edges sufficiently accurate for this marking out, consequently the lines of the grid had to be marked out by sticking needles into the board, aligning them by sighting, and drawing in the lines in short lengths, using the needles as a guide.

On this skeleton grid all the control points fixed on the ground had next to be marked. When this task was complete the process of fitting the loop mosaics to these control points began, and the process already outlined proceeded.

THE AIRCRAFT OPERATING CO. LTD.

The Aircraft Operating Company's exhibit at Gwydyr House includes a specimen of the Wilkinson Eagle Camera, which is being used on the Rhodesian Survey upon which the firm's staff have recently started work, mounted in a skeleton D.H.9 fuselage. This will prove very interesting to those who are concerned rather with instruments and methods than with results.

Of actual results of aerial photography there are many striking examples, ranging from photographs taken on the Orinoco Survey shortly after the War, 1914-18, when air survey made its first commercial efforts, to some examples of the work done for the experimental revision of the Ordnance Survey in the neighbourhood of Eastbourne.

A number of examples of aerial surveys of large estates gives a very excellent idea of the value of aerial methods in a county which is even as abnormally well mapped as is England.

The now famous air map of Central London is a prominent feature of this exhibit. This is well known by sight to all Londoners, but it is to be hoped that visitors to the Air Survey exhibit will scrutinise it more closely than is usually possible on the platforms of Underground Stations. The amount of detailed information that can be obtained from this mosaic is amazing, and covers a great deal more than can be found on any map of the usual type.—W. H. S.

A CANADIAN AIR MAIL.

On September 1, the Canadian Post Office Department will inaugurate an air mail service between Father Point and Quebec and Montreal. Father Point, on the lower St. Lawrence, is the first and last point of call for all mail ships proceeding to and from Canada. By the transference of mail matter at Father Point to the air mail service, a saving of twelve or fourteen hours will be effected.

If the service proves satisfactory until the closing down of the St. Lawrence navigation season, it will be made permanent and will probably be extended to serve Halifax, Nova Scotia, St. John, New Brunswick and other ports in the following season.



THE CHITTAGONG SURVEY.—The Chittagong Club, photographed by the Air Survey Co. Ltd.

AERIAL SURVEYING IN CANADA.

There is probably no country in the world which offers greater opportunities for the use of aerial methods of surveying than does Canada. The reason for this state of affairs will become clear when the conditions obtaining in the Dominion are realised.

At the present time only a relatively narrow belt along the Southern border of the Dominion can be considered to be in a highly developed condition. In the East, in New Brunswick, Quebec and Ontario, the districts along the shores of the St. Lawrence and on the North shore of the Great Lakes have been settled and populated for a very long period, and are well provided with both water and land communications.

Population and development have spread Westward from these Eastern districts mainly along the routes of the two trans-Continental railway lines, and of their various inter-connecting lines and feeders. The greatest depth from South to North of the belt served by this railway system occurs in Alberta, where it is some 400 miles wide. To the North of this railway belt lies 1,000 miles or so of country practically devoid of any transport facilities other than rivers and lakes, largely unexplored, uninhabited and undeveloped.

Within the belt served by the railway system, and West of Lake Huron, settlement and development is of relatively recent growth. It has been made possible by the development of modern transport facilities, and in the rich wheat districts of Manitoba development has been extremely rapid.

Within this Southern and relatively well-developed strip of territory fairly accurate ground surveys have naturally been made, the main natural topographical features accurately fixed and so forth. But with a rapidly increasing population and industrial development it has naturally been impossible for the Dominion Topographical Survey Department to keep its maps up-to-date in regard to town plans, roads, railways and the like. In these districts aerial photography, with its capacity for rapidly recording practically any and every surface detail over a large area, has found an immense use in providing the necessary topographical detail for keeping maps up-to-date.

Where the problem is that of filling in detail in a reasonably accurate outline map for a small and highly developed district, the process of vertical photography is used, and the adjustment of the photographs to fixed points already determined presents no serious difficulties, more particularly as large sections of the Middle West Territory which has been the scene of rapid development, is practically level ground, free from steep contours.

Vertical photography, however, is only suitable for relatively small areas where fine detail is required, and that it has been thought worth while to cover 30,000 or more square miles by this process in Canada is evidence of the scope for this class of work which is to be found there.

Great as the value of vertical photography has been in Canada, the services rendered by oblique photography have been still greater. Huge areas in Canada are undeveloped mainly because they are unknown. North of the belt served by the railways system there are in general neither roads nor villages. Such transport as exists is mainly by canoe, confined to streams and lakes, and such maps as exist show only what can be observed from these waterways.

The first step towards development of this so far virgin territory is to discover what it contains and how it may be reached. Unsuspected mineral wealth, water power, or agricultural opportunities, may lurk unknown within a few miles of a relatively frequented transport route, and might so remain indefinitely, for by no possibility could any attempt at a systematic ground survey of the whole of Canada be attempted by any method at present available.

Roughly speaking this means that maps are required as a prelude to orderly development.—Not necessarily highly detailed and minutely accurate maps, but maps showing with sufficient accuracy the lie of the land, the course of streams and rivers, the position and extent of lakes, forest and open land, and, where possible, the geological features of the surface.

Oblique aerial photography has shown its capacity to undertake this task of exploratory survey in the most satisfactory way. By this method large areas can be covered with great rapidity and, thanks to the fact that much of the unsurveyed area of Canada is practically dead level, maps of remarkably high accuracy can very simply be produced from the resulting photographs.

The general method originally employed for mapping such districts may be described as follows. Starting from a point whose position is known, a flight is made, generally in the form of a loop, following a waterway, or other practicable surface track, and ending at another point whose position is known accurately, or which can afterwards be determined.

A steady altitude is maintained during the flight, and oblique photographs are taken in groups of five at intervals of about every three miles. The five photographs of each group are made up of one straight ahead, and two on each

side, covering an arc of 90 degrees on each side of the aircraft.

The pictures so taken, together with a rough plot of the waterway followed, are then given to a surveyor, who traverses the waterway and obtains ground "fixes" of points recognisable in the photographs by ordinary survey methods. This gives a chain of fixed points over the whole route followed, and it is then a simple matter to plot an accurate map of the traversed loop.

The area enclosed by the loop is then filled in from further photographs taken on a series of parallel flights across the loop, beginning and ending on the two edges of the loop, along which accurate positions are known.

It is now considered possible to dispense with a great portion of the ground control originally employed. No complete traverse around the area to be surveyed is necessary, provided that a relatively small number of points in the area can be fixed accurately.

This provision of fixed points may be made by a small party transported by air to suitable points which can then be fixed by astronomical observation and the employment of wirelessly received time-signals. By this method it will be possible to map practically the whole of Northern Canada without the necessity for any ground traversing at all.

It has been found desirable when working in unsurveyed districts to do the aerial photography before the ground party is sent out to fix control points. When this is done the surveyors can be provided with copies of the photographs and also with a preliminary map plotting made from the photographs. Such a map is quite accurate enough to serve as a guide to the best route for travel and to indicate the topographical features most suitable as fixed points.

The ground party can therefore start out with fairly complete information as to the route to be followed, and the work to be done, and is therefore able to provide a better ground control in a shorter time than would be possible were they to go without such information.

The use of this rapid and cheap method of surveying practically unknown territory has been very marked in the case of some of the newly discovered mineral deposits in Canada. In 1924 a complete map of an area rich in minerals, lying on the boundaries of Manitoba and Ontario, produced from aerial surveys was published. Previous to this the area had been blank and marked "unexplored" on the map.

The new map proved of the greatest value to prospectors. Its appearance was rapidly followed by the discovery of important deposits in the district, and the existence of the map has naturally greatly helped in the development of the district concerned.

During 1926 a map sheet covering a further area in the same district was completed. This sheet added over three thousand lakes and numerous connecting waterways to those shown on previous maps. And in the same season an area of about four times that covered by this sheet in the same area was photographed. In the 1926 season 6,000 "claims" were recorded in this one district.

In the Rouyn Goldfield area, which lies between and within fifty miles of two railway lines, and is barely 200 miles from Ottawa, discovery and preliminary development does not appear to have depended on aerial survey of an exploratory nature. But as a result of development in that district in the past year or two very much more detailed maps than any existing ones have become desirable, and according to recent reports from Canada 5,650 square miles in this district were photographed from the air during 1926.

Another instance of the value of aerial survey in a rapidly developing territory is given by the Rouyn Goldfield. As already mentioned, the field lies quite close to a railway line, and the Canadian National Railway proposed to run a branch line some fifty miles to the field.

The first step to the construction of a new railway is the making of an accurate survey of the district traversed, very particularly one which will give accurate contours. The survey in this case was made by the Brock and Weymouth vertical stereoscopic process. This particular piece of work was done in the early Spring, with snow on the ground and the lakes still frozen, and according to the report of the Railway engineers the results had ample accuracy.

Another photographic operation intimately connected with the development of practically new territory was the photography in 1925 of a strip of country lying alongside the new Hudson Bay Railway, which will give direct rail communications between the Manitoban wheatfields and Port Nelson, where ocean-going ships will be able to load directly from the railway. The more immediate value of this railway line will lie in the fact that wheat from Manitoba exported to Europe via Port Nelson will save anything up to 1,000 miles of over-land transportation.

But there is little doubt that the line will lead to extensive developments in the districts lying alongside it, and the results of photographic survey of this country will be of great value in the near future.

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THE CANADIAN METHOD OF MAPPING FROM OBLIQUE PHOTOGRAPHS.

The outstanding advantage of aerial photography as an aid to surveying lies in the fact that a photograph does give an accurate record of all the detail within sight, and that by the use of aerial photographs such detail can be recorded over a vast area in a surprisingly short time.

But the primary purpose of surveying is generally the production of a map, and the real problem of surveying by aerial photography lies in the process of translating the pictorial record of the photograph into an accurate map.

A photograph is a perspective view, a map is a plan. In the special case where the photograph is taken with the camera axis vertical, and the surface photographed is truly flat, the perspective view is also a plan, and the required map can be plotted directly from the photograph provided that by some means the scale can be determined.

Vertical photographs unfortunately cover only a limited area on each print, and owing to this fact and to the consequent large amount of flying needed to cover a large area, this method of surveying is not suitable for the survey of really large areas such as are regularly photographed by the Royal Canadian Air Force.

Oblique photographs give an image very distinctly different in form from the plan or map form which is eventually required, and to plot maps rapidly from such photographs simple and straightforward methods of translating from the perspective to the plan form are necessary.

In Canada a great proportion of the areas in which rapid surveying methods are most desirable happen to be almost dead flat. Thanks to this fact very simple methods of plotting maps from oblique photographs are possible.

For illustrative purposes imagine a sheet of paper to be marked out in squares by the lines 1, 2, 3, 4, etc., and by the line AB and others parallel to it (Fig. 1). Now imagine that a camera is set up above the table at a height (h), vertically above the line AB, and tilted so that the image received on the plate includes the aforementioned system of squares, and also takes in the line of the horizon (H.H.) through the lens. (Fig. 2.)

The view which would be seen on the focussing screen, or would be photographed, by this camera, may be represented by Fig. 3. All lines parallel to AB converge and meet AB on the line of the horizon. Lines 1, 2, 3, etc.,

at right angles to AB remain at right angles to AB in the photograph, but the distance between these successive transverse lines decreases as the distance from the camera of the lines on the table increases.

The exact form and scale of this perspective image of the network of squares can be determined quite simply if the height (h) of the camera lens above the table, the angle of tilt of the camera, and the focal length of the lens are all known.

Take away the sheet of squared paper and the table and substitute a tract of flat land. Mount the camera on an aeroplane and let it fly over the said tract of land at a height "h" of so many thousands of feet. If all the factors mentioned above—the height of camera, the angle of tilt of the camera, and the focal length of the lens are still known, a drawing, similar to Fig. 3, can easily be constructed which will show what a network of imaginary squares on the ground would have looked like in the photograph.

If this perspective view of the imaginary squares on the ground be marked on the photograph, and an equivalent series of squares be drawn on a sheet of paper to a suitable scale, then the position of points shown on the photograph can be marked on the sheet of squared paper by placing them in the correct square and in the correct position in that square, using the perspective "grid" on the photograph as a guide.

Thus it is easily possible to work back from the perspective view of Fig. 3 to the plan, or map of Fig. 1.

So far the problem seems simple enough. But it has been assumed that all the necessary information as to the exact height and tilt of the camera at the moment of taking the photograph are known. In fact they are not.

The height of the camera above the earth is known approximately from the altimeter readings. If the position of the true horizon were shown on the plate the tilt of the camera could be deduced from the height if that were known. For this reason the visible horizon is included in all the photographs to be used by this method. But the visible horizon lies below the real horizon by an amount which depends on the true height of the camera. Fortunately the "dip" of the visible horizon below the true



An oblique aerial photograph, taken by the R.C.A.F. in Manitoba, with its correct "perspective grid" superimposed. A map is made by transferring points in the meshes of the grid to corresponding points on squared paper.

TOURING DE LUXE

On Thursday, May 12th, Her Grace The Duchess of Bedford landed in the grounds of Woburn Abbey, Bedford, having completed a tour of 4,500 miles in France, Spain and North Africa in a privately owned

“MOTH”

piloted by Captain C. D. Barnard.

The three great mountain ranges, the Pyrenees, The Guadaramas and the Sierra Nevada were all crossed at an altitude of 10,000 feet and during the three weeks that the machine was away THE TOOL BOX WAS NOT OPENED ON A SINGLE OCCASION.

The Moth—the machine with a million miles behind it.



horizon does not vary very rapidly with change of height, and the altimeter readings are sufficient to deduce the true horizon position from the visible horizon with sufficient accuracy.

Having determined the position of the true horizon, the tilt of the camera can be fixed, knowing the focal length of the lens. Now the angle of tilt by itself is sufficient to determine the geometrical form of the correct perspective "grid," leaving the correct scale for that grid uncertain to the extent that the true height of the camera is unknown.

The correct scale can be determined, however, quite simply if there are two points such as G and D shown in the photograph whose distance apart on the ground is known.

To do this the height of the camera is taken as the altimeter height, and a perspective grid, suitable for the tilt, and to the scale for the assumed height, is marked on the photograph.

A trial plotting of the position of points G and D is made using this grid, and their distance apart on the squared paper plan is measured. If the assumed height is the correct height, the plan distance will agree with the true distance.

If the two distances disagree, the ratio of the true height to the assumed height is equal to the ratio of the measured distance on the trial plotting to the known real distance between G and D.

The real height therefore can at once be discovered and a correct scale grid can then be drawn and the map proper is then plotted directly from this.

In actual practise special grids for each photograph are not prepared. A set of grids for various heights and angles of tilt are made once and for all. These grids are scratched on very thin transparent celluloid, so that they may be placed over any photograph. The approximate height of each photograph being known, the true horizon is marked from the visible horizon, and the tilt of the camera deduced.

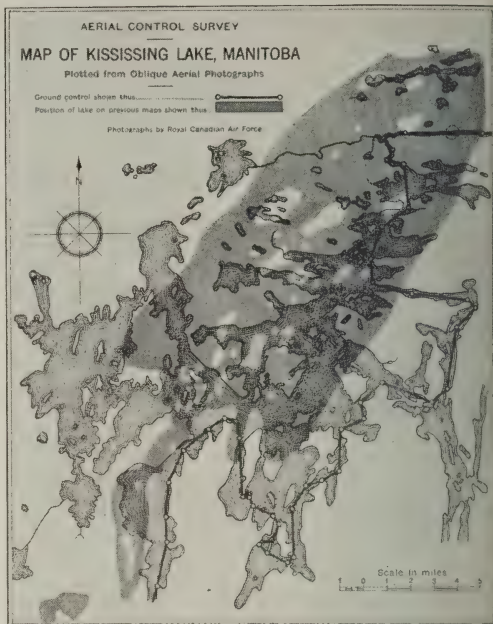
A grid suitable for that tilt and the approximate height is put over the print and a check is made by measuring the apparent distance of any pair of convenient known points in the foreground of the photograph. The true height is thus discovered, the nearest "standard" grid is substituted for the trial grid, and the photograph is plotted.

It would seem at first sight that for this method to be successful, at least two points such as G and D must be fixed by ground methods in the area covered by each photograph. As a matter of fact this is not necessary.

If Fig. 1 represents the area covered by the first of a series of photographs taken along the line A.B., the plan plotted from this photograph will fix the positions of many other points than G and D. If a pair of such points, say E and F, are included in the foreground of the next photograph of the series, E and F will serve for that photograph the purpose served by A and B for the first.

This method of plotting from oblique photographs is extremely simple and rapid, but it is only suitable for use in dead flat country, and it is very largely because so much of the area of Canada is dead flat that oblique aerial surveying has proved so valuable in that Dominion.

THE VALUE OF AERIAL SURVEY.

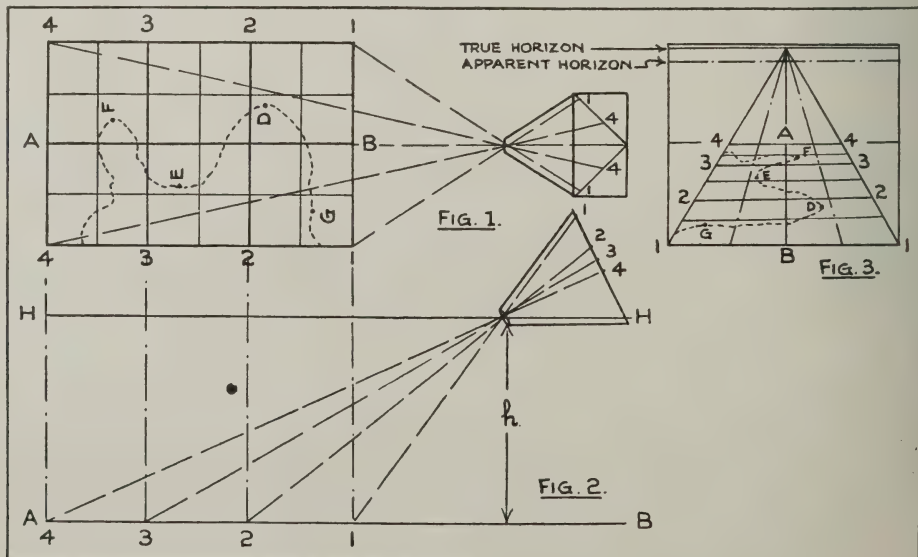


Kissinging Lake lies about 150 miles from the railway connecting Prince Albert (Sask.) and Winnipeg, and within 80 miles of the new Hudson Bay railway to Port Nelson. It is therefore not remote and inaccessible.

Before this lake came within an area covered by the aerial surveys undertaken by the R.C.A.F., it was shown on the map as having the shape and occupying the position of the grey patch in the illustration. The correct shape and position, revealed by aerial photography, shows how far from the truth the early maps were.

The illustration also shows the route of a party which traversed the lake by canoe and fixed points for the control of the aerial photographs. It is quite obvious that this party could not by itself have formed any accurate idea of the true form of Kissinging Lake, and that to map it from the ground a much more extensive ground traverse would have been required.

This particular survey was made before 1923. Since then experience has shown that a much smaller number of control points would have given accuracy.



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ROLLS-ROYCE AERO ENGINES in a Vickers-Vimy aeroplane flew from **ENGLAND** to **SOUTH AFRICA** in 1920.

ROLLS-ROYCE AERO ENGINES in a Fairey seaplane flew across the **SOUTH ATLANTIC** in 1922.

ROLLS-ROYCE AERO ENGINES in a Fairey seaplane flew round **AUSTRALIA** in 1924.

A ROLL-ROYCE AERO ENGINE in a Fokker monoplane flew from **HOLLAND** to the **EAST INDIES** in 1924.

A ROLL-ROYCE AERO ENGINE in a Handley-Page aeroplane flew from **BRUSSELS** to the **BELGIAN CONGO** in 1925.

ROLLS-ROYCE AERO ENGINES in Dornier-Wal flying boats flew from **MOROCCO** to **SPANISH WEST AFRICA** in 1926.

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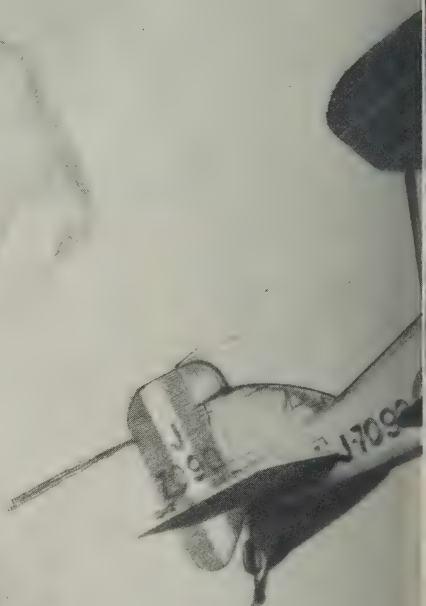
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THE ROYAL AIR FORCE.

The London Gazette.

May 10.

GENERAL DUTIES BRANCH.—No. 137459 Sjt. A. E. J. Pratt is granted a perm. comm. as a Plt Off. on probation, with effect from and with seniority of May 2.

The following Plt. Offs. are promoted to the rank of Flg. Off.:—G. Bradbury (Mar. 12); W. E. Barnes, H. C. G. Dauncey, T. F. Maloney, R. T. Read, J. T. Riggs, L. G. Rumsey (Mar. 26); G. W. Tuttle, E. G. Cayley, R. E. Hall, P. R. Barwell, F. G. Downing, C. H. Jones, W. L. Whitlock (Mar. 28).

Sq. Ldr. T. H. England, D.S.C., A.F.C., is placed on the retired list at his own request (May 4); Flg. Off. J. H. Slater, M.B.E., is placed on the retired list at his own request (May 11); Flt. Lt. R. A. Birkbeck, D.F.C., is transferred to the Reserve, Class A (May 12); Flt. Lt. G. H. Allison is transferred to the Reserve, Class A (Dec. 12, 1926) (substituted for the notification in the Gazette of Dec. 14, 1926); Flg. Off. C. S. Philpott (Lt., Cheshire Regt.) relinquishes his temp. comm. on return to Army duty (Apr. 24).

STORES BRANCH.—Flt. Lt. F. S. Moore is transferred to the Reserve, Class B (May 12).

ACCOUNTANT BRANCH.—The perm. comm. of Plt. Off. on probation C. M. Johnson is terminated on cessation of duty (May 12).

RESERVE OF AIR FORCE OFFICERS.—The following are granted commissions in Class A.A., General Duties Branch, as Plt. Offs. on probation:—S. J. Barlow (Apr. 25); G. A. R. Malcolm (Apr. 26); R. P. S. Taylor (Apr. 27); J. P. Rae (Apr. 28).

The following are granted commissions in the General Duties Branch, Special Reserve, as Plt. Offs. on probation:—D. G. Allison (Apr. 23); R. H. Maw, N. D. Wardrop (May 2). Plt. Off. F. R. Matthews is promoted to the rank of Flg. Off. (May 9); Flg. Off. B. A. Davy is transferred from Class C to Class A (Apr. 16).

The following are transferred from Class A to Class C:—Flt. Lt. M. D. Nares, A.F.C. (May 10); Flg. Off. A. J. C. Overall (Apr. 21). Flg. Off. C. Dutton resigns his comm. (May 10).

Appointments.

Week ending May 16.

GENERAL DUTIES BRANCH.—Group Captains J. A. Chamier, C.B., C.M.G., D.S.O., O.B.E., to R.A.F. Depot, Uxbridge, 1/4; and to Air Ministry, Directorate of Technical Development, on appointment as Deputy Director of Technical Development, 6/5. H. M. Cave-Browne-Cave, D.S.O., D.F.C., to H.Q., Coastal Area, Supernumerary, 6/5.

Wing Commanders S. Grant-Dalton, D.S.O., A.F.C., to Armament and Gunnery School, Eastchurch, to command, 6/5. E. H. Johnston, O.B.E., D.F.C., to R.A.F. Depot, Uxbridge, 6/5.

Squadron Leaders D. E. Stodart, D.S.O., D.F.C., to R.A.F. Depot, Uxbridge, 26/3. E. R. L. Corballis, D.S.O., O.B.E., to R.A.F. Depot, Uxbridge, 9/4; and to No. 22 Sqn., Martlesham Heath, 3/5. A. S. C. S. MacLaren, O.B.E., M.C., D.F.C., A.F.C., to H.Q., Inland Area, Stanmore, 9/5. D. F. Stevenson, D.S.O., M.C., to H.Q., Air Defence of Great Britain, Uxbridge, 10/5. J. Noakes, A.F.C., M.M., to R.A.F. Depot, Uxbridge, 9/4.

Flight Lieutenants E. L. P. Morgan, C. F. Horsley, M.C., G. G. Banting, R. L. Crofton, M.B.E., A.F.C., C. D. Pyne and H. W. Clayton, to R.A.F. Depot, Uxbridge, 9/4. E. S. Goodwin, A.F.C., to R.A.F. Depot, Uxbridge, 11/4. F. H. E. Reeve, to Electrical and Wireless School, Flowerdown, 19/4. H. M. Moody, M.C., to Electrical and Wireless School, Flowerdown, 11/5. J. MacG. Fairweather, D.F.C., to No. 23 Sqn., Kenley, 18/5. A. J. E. Broomfield, D.F.C., to No. 4 Sqn., S. Farnborough, 16/5. R. L. Stevenson, M.B.E., to No. 22 Group H.Q., Farnborough, 6/5. J. W. Young, M.B.E., to No. 20 Sqn., India, 5/4. J. R. Woolley, to No. 1 Wing H.Q., India, 5/4. B. H. C. Russell, to No. 3 Wing H.Q., India, 1/4. F. J. Clayton, M.C., D.F.C., to No. 6 Sqn., Iraq, 1/4. F. Beaumont, to H.Q., Iraq, 26/4.

Flying Officers H. L. Beatty, to No. 481 Flight, Mediterranean, 20/4. (Hon. Flt. Lt.) G. Anderson, to H.Q., Iraq, 22/4. M. C. Pascoe, to No. 481 Flight, Mediterranean, 20/4. R. Scott-Taylor, to H.Q., Iraq, 20/4. J. A. T. Ryde, to No. 402 Flight, Mediterranean, 20/4. F. Porter, to No. 84 Sqn., Iraq, 1/4. A. P. Marchant, M.B.E., D.S.M., to Armoured Car Wing, Iraq, 1/4. K. C. Garvie, to Aircraft Depot, Iraq, 1/4. H. J. Gearing, to H.Q., Egypt, 19/4. P. R. Stroud, to No. 4 F.T.S., Egypt, 10/4. J. H. Powle, to No. 60 Sqn., India, 7/4. N. K. Howard and G. B. Collet, to No. 5 Sqn., India, 7/4. R. D. Adams, to No. 27 Sqn., India, 7/4. H. R. Bardot, to No. 60 Sqn., India, 20/4. G. P. Chamberlain, to H.Q., India, 14/4. J. A. Hawkins, to No. 60 Sqn., India, 10/4. T. K. Metcalf, to No. 31 Sqn., India, 7/4. W. E. James, to No. 4 Stores Depot, Ickenham, 12/4. B. Cheesman, M.B.E., to M.A.E.E., Felixstowe, 9/4. C. Dollery, M.B.E., to H.Q., Fighting Area, Uxbridge, 16/5. (Hon. Flt. Lt.) W. F. R. Gough, to R.A.F. Base, Calshot, 13/5. J. E. Doran-Webb, to No. 17 Sqn., Upavon, 23/5. S. E. Bulloch, to Record Office, Ruislip, 13/5. H. Buxton, T. H. Mow, D. Macfadyen and A. W. Crees, to R.A.F. Depot, Uxbridge, 9/4.

Pilot Officers G. L. G. Richmond, to No. 58 Sqn., Worthy Down, 16/5. V. O. Blackden, to No. 16 Sqn., Old Sarum, 10/5. J. Barton, to R.A.F. Depot, Uxbridge, 11/4. C. D. G. Welch, to Aircraft Depot, India, 16/5.

MEDICAL BRANCH.—Flight Lieutenants G. J. Griffiths, to R.A.F. British Hospital, Iraq, 20/4. T. W. Wilson, to Station Commandant, Hainaidi, Iraq, 1/4. D. B. Smith, M.B., to R.A.F. Combined Hospital, Iraq, 1/4. Flight Lieutenant (Dental) P. P. Hogan, to R.A.F. General Hospital, Iraq, 1/4.

Flying Officer B. L. Edwards, M.B., to R.A.F. Combined Hospital, Iraq, 1/4.

STORES BRANCH.—Wing Commander E. W. Havers, to H.Q., Coastal Area, 29/4.

Squadron Leader W. B. Cushion, to Air Ministry, Directorate of Equipment, 6/5.

Flight Lieutenants A. T. Cooper, to the Packing Depot, Ascot, 27/5. W. C. Farley, to No. 22 Group H.Q., Farnborough, 20/5. A. H. Cunliff and E. L. Ridley, to R.A.F. Depot, Uxbridge, 9/4.

Flying Officers A. S. Berry and W. Best, to Air Ministry, Directorate of Equipment, 16/5.

ACCOUNTANT BRANCH.—Squadron Leaders P. J. Wiseman, to No. 4 Stores Depot, Ickenham, 9/5. H. F. Fuller, to R.A.F. Depot, Egypt, 20/4.

Flight Lieutenants W. E. Ennis, to R.A.F. Depot, Uxbridge, 9/4. (Hon. Sq. Ldr.) G. H. White, to R.A.F. Depot, Uxbridge, 22/4. J. Sullivan, to R.A.F. Depot, Uxbridge, 9/4.

Flying Officers C. W. Price, to R.A.F. Depot, Uxbridge, 9/4. D. F. A. Clarke, to No. 208 Sqn., Egypt, 14/4. A. E. West, to H.Q., Egypt, 20/4.

Vacancies in the Stores Branch.

The Air Ministry announces that 15 to 20 vacancies for permanent commissions in the Stores Branch of the R.A.F. will be offered for competition among young men between 23 and 25 years of age who have not less than five years' business experience in a firm of standing. This is the second competition under the scheme initiated last year to obtain men with a business training to control and administer the supply of the highly valuable and complex equipment of the R.A.F.

Accepted candidates will be gazetted to commissions as Pilot Officers on probation and will receive six months' training in their future duties. After a year's satisfactory service, they will be eligible for confirmation in their appointments and for promotion to the rank of Flying Officer.

Inquiries for copies of the regulations and for application forms should be made in writing to the Secretary, Air Ministry, London, W.C.2. Completed application forms should reach the Air Ministry not later than May 23.

Fatal Accidents.

The Air Ministry regrets to announce that as the result of an accident at Littlewick, near Maidenhead, to a D.H.9 machine of the Civil Flying School, Stag Lane, Edgware, on May 12, Flg. Off. William Alan Foot, Reserve of Air Force Officers, the pilot and sole occupant of the aircraft, was killed.

[At the inquest, which was held at Maidenhead on May 13, Mr. Robert Brant Kingsbury, London, said he had listened to the statements of witnesses as to what they saw and, also having examined the wrecked machine, he had arrived at the conclusion that the aeroplane was struck by something, probably by the top of a tree. The Coroner said he was satisfied that every precaution was taken to ensure that the machine was perfect before starting. He was satisfied there was no negligence on the part of anyone, and recorded a verdict of "Accidental death."]

The Air Ministry regrets to announce that as the result of an accident at Henlow Aerodrome, Bedfordshire, to a Bristol Fighter of the R.A.F. (Cadet) College, Cranwell, on May 13, Flt. Cadet Alfred Cyril Bentley, the pilot and sole occupant of the aircraft, was killed.

[Apparently Mr. Bentley attempted to land down wind.]

The Air Ministry regrets to announce that as the result of an accident 3-mile North of Gosport Aerodrome to a Fairey III.D machine of the R.A.F. Base, Gosport, on May 13, Flg. Off. (Hon. Flt. Lt.) Richard Fenner Carter, the pilot and sole occupant of the aircraft, was severely injured and died later of his injuries.

The Air Ministry regrets to announce that as the result of an accident at Sealand, Queen's Ferry, Chester, to an Avro of No. 5 F.T.S., Sealand, on May 16, Plt. Off. Arthur George Mace, the pilot and sole occupant of the aircraft, was killed.

The Air Ministry regrets to announce that as the result of an accident at Kenley, Surrey, to a Gamecock machine of No. 32 Squadron, Kenley, on May 16, Plt. Off. Arthur Leslie Holden, the pilot and sole occupant of the aircraft, was severely injured and died later of his injuries.

[Apparently this accident was caused by a collision between two machines just after they had taken off in a formation.]

The Service Flight to India.

Flt. Lt. C. R. Carr, D.F.C., R.A.F., who, with Flt. Lt. L. E. M. Gillman, R.A.F., as Navigation Officer, will attempt to fly to India on a specially prepared Hawker Horsley machine (650 h.p. Rolls-Royce Condor engine) have been ready to start from Cranwell since May 14.

At the time of going to press they had not started, owing to unfavourable weather conditions.

The Service African Tour.

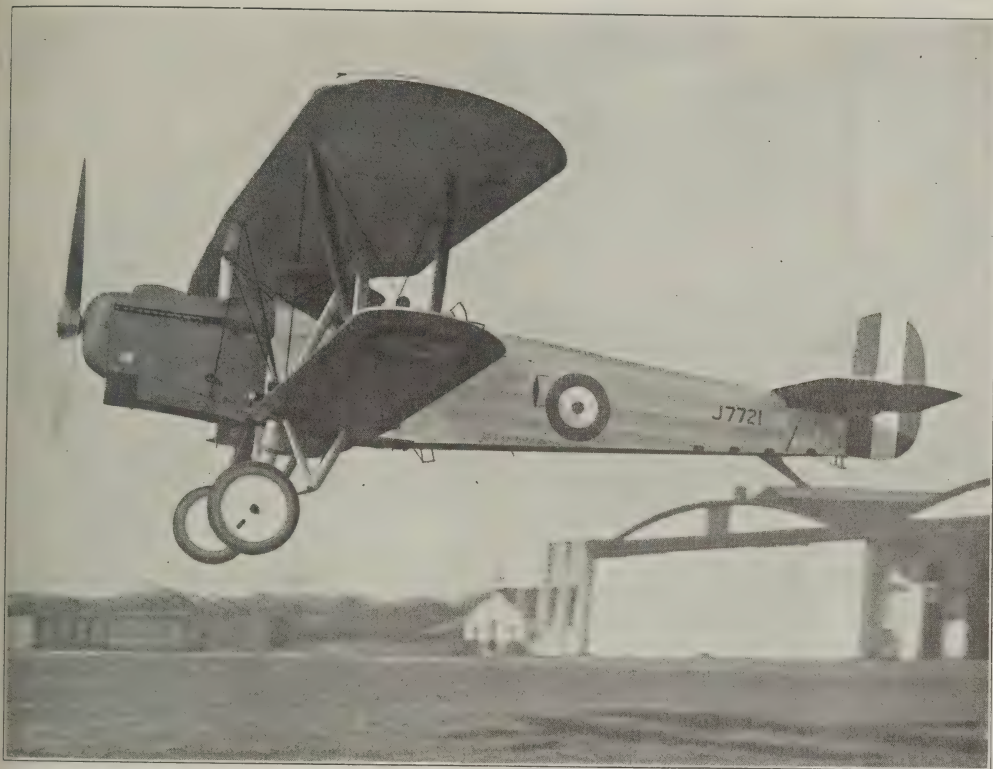
The Cape Flight under Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., R.A.F., left Bulawayo on May 10 for Livingston and Nairobi. The Flight arrived at N'dola on May 12.

A Lahore to Lympne Flight.

A cablegram has been received from Lahore stating that Flg. Off. J. J. C. Cocks, No. 60 (Bombing) Sqn., R.A.F., is expected to leave for England on May 14.

Mr. Cocks is attempting to fly from Lahore to Lympne in a privately-owned D.H.9 (240 h.p. Siddeley Puma engine). His passenger is Cpl. Rowston, R.A.F.

The machine is in fact built-up from two D.H.9s, which Mr.



THE "HORSLEY."

"Flight" Photo.

The Hawker "Horsley" is the R.A.F. Standard Day Bomber. It is particularly suitable for Bombing, Coastal Defence and Reconnaissance Duties. Details can be supplied to Bona Fide applications from Colonial and Foreign Governments.

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Cocks bought from the State of Nabha and reconditioned in his spare time.

These machines were presented to the Maharajah of Nabha by the Imperial Government after the War 1914-18.

Sea-Mindedness in the R.A.F.

The Times of May 11 states:—

It has been decided to bring forward a coastal motor-boat from those in reserve at Port Blockhouse for loan to the Air Ministry, for No. 10 Group, R.A.F., for a period of about 15 months. The boats at present at Gosport include six in the reserve and experimental flotilla, and about 15 suitable for target use only and not counted on the effective list. The former are 12-ton boats, with engines of 750 h.p., able to develop a speed of from 28 to 40 knots.

A naval crew is to be provided for the running of the vessel until such time, probably the end of June, as an Air Force crew has been trained sufficiently to take over. All the extra expense involved in preparing the vessel for service, supplying any necessary stores, and making good any defects which may develop while the vessel is on loan, will be borne by the Air Ministry.

A Cambridge Memorial.

Air Marshal Sir John Salmond, K.C.B., C.M.G., C.V.O., D.S.O., A.D.C., unveiled a memorial to three distinguished scientists at Cambridge on May 6. The following particulars appear in *The Times*:—

The inscription, after reciting the three names honoured, continues:—*Hujus Academiæ alumnorum ob rerum naturæ scientiam insignium qui artis navigandi operam studium vitam ipsam impendunt* (. . . graduates of this University, distinguished students of natural science, who gave diligence, devotion, and life itself to the study of aeronautics.)

LT.-Col. Hopkinson, C.M.G., was Professor of Engineering in the University. He greatly developed the School of Engineering, and formed an engineering branch of the C.U.O.T.C. After various appointments during the early part of the war, he became Deputy-Controller of the Technical Department at the headquarters of the Air Ministry. Although 40 years of age, he considered it his duty to learn to fly, and it was while flying from Martlesham Heath to London that he crashed and was instantly killed.

Dr. Keith Lucas's marvellous skill in designing instruments had enabled him to reduce one side of physiology to an exact science. He became a Fellow of Trinity in 1909. When he was on the staff of the Aircraft Factory at Farnborough, during the war, a long series of experiments conducted by him revealed the source of various errors in aeroplane compasses, and he was successful in inducing numerous improvements into their design. He was killed in a collision in the air.

E. T. Busk had been appointed Assistant Engineer Physicist at Farnborough in 1922. He was one of the earliest victims of the war, being killed by an outbreak of fire in the air on Nov. 5, 1914. He had especially applied himself to the theory of stability, and was able to demonstrate that minor modifications only were needed to make any aeroplane stable. For this he was awarded after death the Gold Medal of the Royal Aeronautical Society. But his great claim to fame lay in the tradition which he started by the performance of accurate and scientifically conceived experiment in the difficult conditions of free flight.

The Memorial consists of an oak panel in the lecture-hall of the Cambridge University Air Squadron and has been erected by members of the Squadron and friends of those commemorated.

AIR AFFAIRS IN PARLIAMENT.

R.A.F. CONTRACTS.

In the House of Commons on May 3, in reply to MR. BUXTON, the SECRETARY OF STATE FOR AIR said that the approximate expenditure on contract work during the financial year was estimated as follows:—Technical and Warlike Stores, £7,700,000. Works, buildings and lands, £1,800,000. Total, £9,500,000.

AIR MAILS.

In the House of Commons on May 3, in reply to a question by COL. DAY, the POSTMASTER-GENERAL said that the estimated number of letters and the actual number of parcels carried by air mail to the countries mentioned during the first quarter of 1927 and 1926 were:—Letters: France (1926), 5,410; (1927), 4,460. Belgium (1926), 520; (1927), 1,670. Holland (1926), 1,460; (1927), 1,790. Germany (1926), 1,190; (1927), 2,960. Parcels: France (1926), 893; (1927), 730. Belgium, no service. Holland (1926), 320; (1927), 382. Germany (1926), 236; (1927), 544.

[These figures show that there has been an increase in every case except to France, where there has been a decrease of 950 letters and 165 parcels. But in any case the whole amount is merely a joke compared with what other countries are doing.—ED.]

THE AIRSHIPS.

In the House of Commons on May 4, in reply to a question by MR. WELLS, the SECRETARY OF STATE FOR AIR said that the expenditure on experiments and research in connection with airships was approximately £260,000 spread over the last three years. The actual building of R.101 (labour and materials) would involve about £280,000. SIR FRANK MEYER thought the whole history of the scheme provided conclusive proof that the State was unsuited to carry out this enterprise.

In reply to SIR F. WISE, SIR SAMUEL HOARE said that he hoped that both airships would be flying next year.

In reply to MR. WELLS, SIR SAMUEL HOARE said that the question of the designs of both the R.100 and the R.101 were being examined by two distinguished scientists of great experience in such questions and until their examination had been concluded, formal approval of the design could not be finally given. The designers of both airships were working closely to the scheme of factors of safety laid down in the Report of the Airworthiness of Airship Panel of the Aeronautical Research Committee.

Replying to COMMANDER BELLAIRS, SIR SAMUEL HOARE said that the erection of the hull could not begin until the transverse and longi-

tudinal girders were ready for assembly, the procedure being to assemble the shorter girders into transverse rings on the ground, sling them into upright position and join them together with the longitudinals. Work on the girders was proceeding.

Replying to a further question by COMMANDER BELLAIRS, SIR SAMUEL HOARE said that the R.101 should be able to carry 200 soldiers or alternatively a squadron of aeroplanes. She was being designed to carry aeroplanes.

MR. WALLHEAD asked if she would even fly at all.

THE R.A.F. AND FLYING MEETINGS.

In the House of Commons on May 11, in reply to COL. DAY, the UNDER-SECRETARY OF STATE FOR AIR said that a number of R.A.F. officers had taken part in the flying meeting at Bournemouth of Apr. 18, but not on Service machines. No materials or machines belonging to the R.A.F. had been used on this occasion.

PRIVATELY-OWNED AIRCRAFT.

In the House of Commons on May 11, in reply to LT.-CDR. KENWORTHY, the UNDER-SECRETARY OF STATE FOR AIR said that the number of civil aircraft with valid certificates of airworthiness, excluding those owned by the Air Council, by Imperial Airways Ltd. and by subsidised light aeroplane companies, was 138, of these 36 were light aeroplanes.

THE R.A.F. AT HAMBLE.

In the House of Commons on May 12, in reply to a question by COL. DAY, the SECRETARY OF STATE FOR AIR said that six single-seater fighter aeroplanes, three Southampton flying-boats, thirteen officers and twenty-one airmen of the R.A.F. would take part in the aerial pageant at Hamble on May 15.

In addition, one single-seater fighter aeroplane, three two-seater or multi-seater aeroplanes, two seaplanes, six officers and five airmen would visit the display.

A NATIONAL AVIATION FUND.

With the idea of providing money to help in a general way the progress of Aviation in Great Britain a National Air Fund is being formed, the Trustees of which are Captain the Hon. F. E. Guest, C.B.E., D.S.O., M.P., formerly Secretary of State for Air, The Lord Ossulston, and Mr. E. Soanes-Lendrum, a Director of the Inverness Paper Company.

Those responsible for the Fund do not intend in any way that it shall clash with the objects of the Air League or with any existing institution. Its sole idea is to collect money from the public and expend it on useful objects such, for example, as making grants to the existing Flying Clubs.

By way of giving the Fund a good send-off a Ball has been arranged to take place at the May Fair Hotel, Berkeley Street, on June 30. One gathers that already something like 1,500 tickets have been sold. The Ball will take place in the new Ball Room and the Winter Garden will be taken over for a reception room. Further particulars as to the price of tickets and so forth will be published later, or may be obtained from the Secretary, Mr. Norman Hulbert, 34, Broadway, S.W.1.

Sir Samuel Hoare, Secretary of State for Air, has written giving his patronage to the function, and among the other patrons are Lord Thomson, Sir Robert Hadfield, and Mr. F. L. G. Bertram, Deputy Director of Civil Aviation.

THE ROYAL AERONAUTICAL SOCIETY.

At the Annual General Meeting of the Royal Aeronautical Society which was held on Mar 29 last, an alteration of the Rule fixing the period of office for Chairman at one year, was altered to allow the Chairman to serve for two years, if such was the desire of the Council.

Colonel the Master of Sempill, under this new Rule, was unanimously elected by the whole Council, Chairman of the Royal Aeronautical Society for a further period of Office as from October 1927 to September 1928.

PROFESSOR PRANDTL'S LECTURE.

At a meeting of the Royal Aeronautical Society, held at the rooms of the Royal Society of Arts, on Monday, May 16, COL. THE MASTER OF SEMPILL, Chairman of the Society, presented the Gold Medal of the R.Ae.S. to Prof. L. Prandtl of Göttingen University.

In a brief but happily phrased speech, Col. Sempill recalled the fact that the Society was the oldest aeronautical body in the world, that the Gold Medal was the highest honour the Council was empowered to bestow, and that it had always been very zealous not to bestow that honour except in cases of outstanding service to the science of aeronautics. The work done by Prof. Prandtl during many years undoubtedly justified the bestowal of the medal upon him, for his development of aerodynamic theory had for the first time showed us how and why an aeroplane flew.

At the same meeting the Silver Medal of the Society was presented to Prof. Melville Jones of Cambridge University for his paper on "The Control of Stalled Aeroplanes."

Thereafter, Prof. Prandtl delivered the fifteenth Wilbur Wright Memorial Lecture on "The Generation of Vortices in Fluids of Small Viscosity." This paper was illustrated by the most fascinating photographs and films of turbulent flow that have yet been seen in this country, but, unfortunately, it is impossible to give any idea of the interest thereof in the absence of the illustrations. It is hoped that it will be possible in the future to secure some of these illustrations, but those who failed to see the lecture and the actual films must necessarily miss a great deal of the fascination of the lecture itself.

THE WESTLAND WIDGEON



THE Widgeon III is a very strongly built and substantial light aeroplane and it is particularly suitable for real hard work. The machine carries passenger, pilot and about 50 lbs. of luggage. The engine is the well-known Cirrus Mark II, or the Armstrong-Siddeley "Genet." Being a parasol monoplane there is a most excellent view for both pilot and passenger in a downward direction, making the machine ideal for patrol or survey work.

In addition the wings are braced with struts and consequently there is no chance whatever of the rigging getting out of true and needing skilled attention. The passenger's entrance is through a door in the side of the fuselage and he has a very a very roomy cockpit.

The aeroplane can be supplied with dual control. The machine is economical to run, the petrol consumption being approximately 20 miles per gallon,

and the oil consumption is about one pint per hour. The overall dimensions of the machine when folded are only 8 ft. 6 ins. high, 10 ft. 6 ins. wide, and 23 ft. 1 in. long.

All machines are furnished with an aerobatic certificate of Airworthiness for a total weight of 1,400 lbs. which allows for passenger, pilot and luggage, while the total weight can be increased to 1,600 lbs. without exceeding the permissible load for normal factor of safety.

PRICE (with Cirrus II engine)

£750

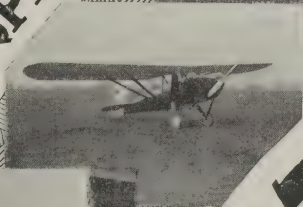
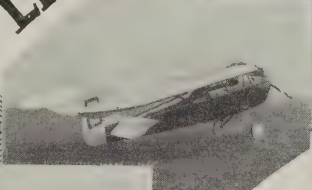
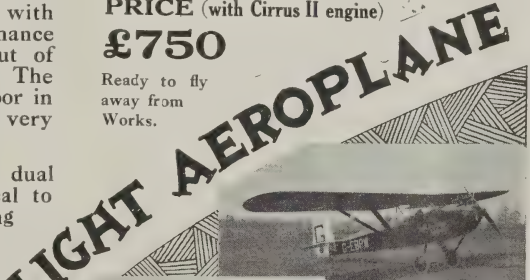
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WORKS.**
(Branch of Petters Ltd.)
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THE HAMPSHIRE AIR PAGEANT.

If people ever went to bed on a Sunday night with clear consciences and the feeling of having done their duty in that state of life to which they had been called, the promoters and organisers of the Hamble Pageant were among those chosen people on Sunday, May 15. Not only had they given some tens of thousands of people (the estimates vary between 20,000 and 40,000) a most entertaining afternoon in the fresh air (perhaps a trifle too fresh at times), and not only had they helped very materially to make the people of this country air-minded, but, according to a letter which appeared in one of the papers, they actually drove to church one gentleman who had not been there for about twenty years, and went on that Sunday as a protest against the irreligion of the 20,000 (or 40,000).

The beginning of Sunday was wet and windy, and the promoters were rather scared lest the weather should spoil the gate. But even before the sun broke up the clouds they were feeling thankful that it was not a fine day. For if it had been fine goodness knows what they would have done with the crowd.

Even as it was, people who tried to get to the aerodrome after lunch found themselves in a three-mile string of cars, hundreds of which never got to the aerodrome at all. Some people abandoned their cars by the roadside a good two miles from the aerodrome and walked the rest of the way, and when one left somewhere about eight o'clock there were still a dozen or two of empty cars a mile up the road waiting for their owners to return to them.

THE R.A.F.'S DAY OFF.

Evidently the Royal Air Force has no conscientious scruples about Sunday flying. Wars do not close down for a Sunday rest and as the Air Force is continually at war with the air presumably there is full justification for Service flying on Sundays. And evidently the airmen of the R.A.F. have no objection to working on Sundays, for nobody could possibly be keener than the aircraftsmen who were volunteer attendants on some of the machines.

One of the most striking features of the show was the presence of what seemed to be hundreds of Aircraft Apprentices from Halton, who came over in a fleet of *chairs-à-bancs* to see their own particular light aeroplane perform, which it did remarkably well. Those aircraft apprentices gave everybody an excellent impression of the Other Ranks of the Air Force of the future. They looked much more like a lot of O.T.C. people from a good public school than like the non-commissioned ranks of one of the Services. They were smartly turned-out, extraordinarily well-behaved, and as cheery and keen as anyone could wish youngsters to be.

Presumably there will be a string of questions in the House about the participation of the Air Force in this Sunday

Pageant, and one only hopes that the questioners will get adequately terse replies.

Just by way of giving the right touch to the proceedings, the Reverend Bruce Cornford, the Honorary Chaplain of the Hampshire Aeroplane Club, delivered a little address before the proceedings began, and the band played "The King," which was transmitted through loud-speakers all over the enclosures, the whole vast crowd standing smartly to attention the while.—Incidentally, Bolshevik propaganda in this country seems to be doing good. One has noticed of late that when "The King" is played people spring to attention much more smartly than ever they did before the War or even before the General Strike.

THE MANAGEMENT.

As to the running of the Pageant, everybody connected with it deserves the heartiest congratulations. The staff-work was excellent. Where so many were concerned one cannot fairly make distinctions, so the only thing to do is to give a list of the Committee who were responsible. These were:—*Chairman*: O. E. Simmonds; *Band and Broadcasting*: B. B. Henderson; *Catering*: S. Fry; *Enclosures*: R. J. Parrott, R. V. Perfect and H. J. Osman; *Engineering*: F. C. Stokes; *Entries*: Flt. Lt. C. Crawford; *Events*: Capt. F. J. Bailey and Flt. Lt. G. I. Thomson, D.F.C.; *Finance*: L. W. Weaver and W. W. Appleford; *Publicity*: Robert L. Carter; *Tickets*: N. J. Bishop; *Traffic and Police*: A. R. Vanden Bergh; *Transport*: D. L. Rumble and A. N. Clifton; *Unattached*: R. H. Bound; *Secretary*: Major R. Ross White.

Being oneself in that line of business, one must, however, single out for particular praise Mr. R. L. Carter, who was responsible for Publicity. Not only did he get the advertisements in the right place, but his advertising was of the right kind. It was clever and original, and the tone of it was good. It was arresting without being offensive and funny without being vulgar. In every way it was streets ahead of the majority of the advertisements turned out by the so-called publicity experts of most of the great London advertising agencies.

If these big advertising agents keep their eyes open for fresh talent in the same way that theatrical agents are always looking for new stars one or other of them ought to adopt Mr. Carter before many months have passed. In any case, one wishes that some aircraft firms were advertised as effectively as was the Hampshire Pageant.

Another thing that was extraordinarily well done was the placarding of the roads to the aerodrome with the assistance of the Automobile Association and its well-known "loop-way" signs. Everyone within twenty miles of Hamble was irresistibly directed to the Pageant. One believes that it



AT THE HAMBLE PAGEANT.—A view of the aerodrome, with a flock of Moths—the highest being that which was flown so well by the Hon. Lady Bailey.

VICKERS *Limited*

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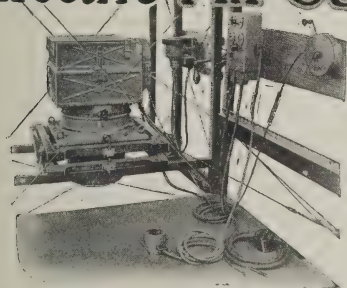
The finest aircraft may fail in its purpose if its equipment is unsatisfactory.

The several items which will form the subject of this series of announcements are confidently recommended to the consideration of all Aircraft Designers, Manufacturers and Users, and to all concerned in the equipment of Air Organisations.

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ASCENDING POWERS AT HAMBLE.—A D.H. Moth (Cirrus 80 h.p.), a Gloster Gamecock (Jupiter 450 h.p.), a Hawker Horsley (Condor 650 h.p.), and the Avro Ava (two Condors 1,300 h.p.).

was the "Transport Department," run by Mr. Rumble and Mr. Clifton, which was primarily responsible.

The one weak spot in the show was the actual organising of the events on the aerodrome, and the weakness only showed in the delay in starting the events. This was purely due to lack of experience.

The Fly Past or Procession of Aircraft got away very nearly at the advertised time of 14.30 hours. But the first race, instead of starting at 14.55, did not start till after 16.00 hours, as will be explained later.

While the crowd was waiting for the Procession to begin a very fine show of flying under most difficult circumstances was put up by Flt. Lt. Calvey on a Gloster Gamecock (Jupiter) and Flt. Lt. Hamersley on an Avro Gosport. The clouds were low and the wind was gusty and the machines disappeared every now and then, to re-appear in strange positions which must have scared anybody who did not know the consummate skill of the pilots.

THE BIG PARADE.

The Fly Past was quite interesting. It was led by a D.H.53 (Bristol Cherub), the little single-seat monoplane which was designed for the Lympe Meeting of 1923. This was followed by the R.A.E. Club's Hawker Cygnet (Cherub), then by a Bristol Brownie (Cherub) single-seater belonging to the London Club, and a Brownie (Cherub) two-seater belonging to the Bristol Company. Then came the A.N.E.C.II (Cherub) now owned by Mr. Norman Jones.

Next was the H.A.C.-I (Cherub), the pride of the Aircraft Apprentices, a thoroughly good little aeroplane. Then came a Moth (Cirrus), then an Avro Avian (Cirrus), then the Westland Widgeon III (Cirrus).

The Westland II (Genet) had arrived, flown by Colonel the Master of Sempill, but unhappily in the act of landing his tail skid struck a large sharp flint in a rut in the aerodrome which abolished his tail-skid, complete with fittings, as effectively as if it had hit a curb-stone. An extraordinarily bad piece of luck.

After that came the Blackburn Bluebird (Genet) looking as beautiful and flying as beautifully as ever, in spite of its gunshot wounds. Then came a Boulton and Paul P.9 (90 Raf), built by Boulton and Paul in 1919,—one of the first real commercial aeroplanes. It is just the thing that is wanted at the present day, but it has never made a mark for itself simply because it was too well built and therefore too expensive.

Then came an Avro Lynx Tourer—the curious K-strut type—one of the recent developments of the famous 504K. Next was one of the good old wartime S.E.5as (Viper). Then came a Nieuport Nighthawk (Bristol Jupiter), Mr. Folland's first product after the Armistice. It was designed for a Dragonfly engine, and the failure of that engine caused the failure of the machine. However, with the Jupiter it flies very nearly as well as Mr. Folland's latest products at the Gloster Works.

The next machine was a Martinsyde (A.D.C. Nimbus), the A.D.C. Aircraft Co.'s demonstration machine which in spite of having been designed in 1918 is still one of the most modern-looking of aeroplanes. After that came a Gloster Gamecock (Bristol Jupiter), our very latest standardised single-seat fighter. This was followed by a Supermarine Sheldrake (Napier Lion), an amphibian which flies very well, though one can never get over the comic appearance of a flying-boat on land.

Thereafter came the Hawker Horsley (Rolls-Royce Condor), certainly one of the most beautiful aeroplanes in the World. This machine carries on the tradition which the Hawker Company has inherited from the old Sopwith Company of making aeroplanes which fly, as distinct from aeroplanes which are pulled through the air by sheer engine-power. Somewhere about this part of the procession came the Westland Yeovil (Rolls-Royce Condor) which was not on the programme—a grim-looking war machine, which does fly very well.

After that came our old friend the Handley Page Hampstead (three Bristol Jupiters) belonging to Imperial Airways Ltd., which had really come to Hamble to do joy-riding. Alluding to the way in which she jumps into the air with these engines somebody who rather resented its use as a joy-ride machine referred to it as "that bounding coffin,"—a remark which must not be taken in any uncomplimentary sense, but merely as an allusion to the shape of the fuselage.

Last on the programme was the Avro Ava (two Condors). This is one believes the most efficient twin-engined land-plane in the World, and in its class it is certainly the most beautiful. Like every Avro that has ever been built it is a real flying machine. Presumably Air Ministry orders will be given for it just about the time when it becomes hopelessly out of date—for the design is already four years old.

While the procession was proceeding a Fairey I.I.D. (Napier Lion) float seaplane manoeuvred around the aerodrome, and showed that a float machine can be just as handy as a machine on wheels.

THE INITIAL DELAY.

After the Parade there was a tremendous delay before the start of the Wakefield Light Aeroplane Handicap. During this hour or so a certain amount of liveliness was given to the proceedings by an impromptu coursing match between one of the many aerodrome hares, started by the noise of the engines, and the inevitable dog-which appears-from-nowhere. As a coursing dog the animal was a complete wash-out, and after a few minutes the broadcast announcer stated that the hare had won.

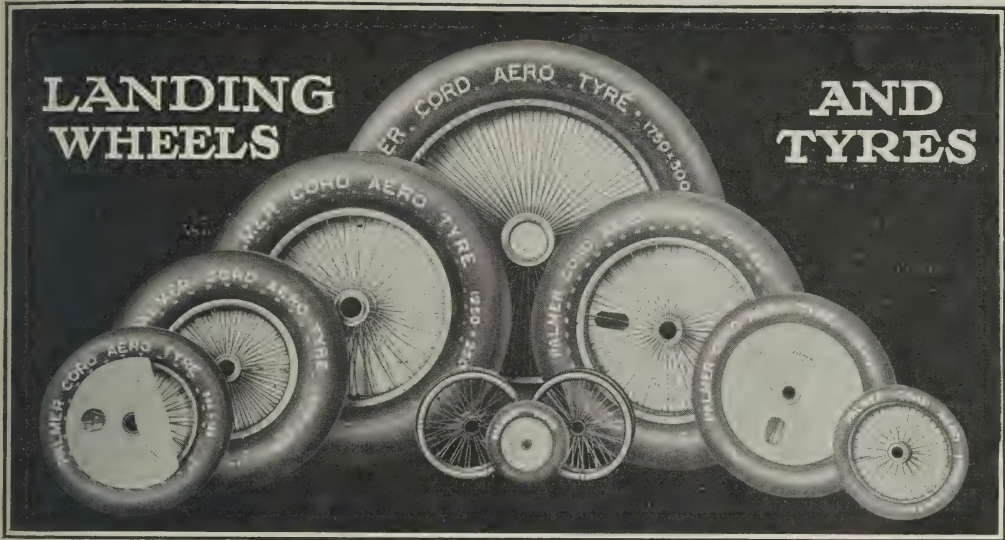
A little later the broadcaster announced that the official time-keeper was urgently needed at the official tent. This seemed to account for part of the delay. Then one heard that the delay was caused by the fact that part of the Committee had arranged for the starting to be done by local officials and that somebody else had arranged for starters appointed by the Royal Aero Club to do the job, and that the local starters had been relieved of office and that the London starters had not arrived.



THE FANATICS.—The Halton Apprentices and their Aeroplane, the H.A.C.-I (Cherub), at Hamble.



PALMER



STANDARD SIZES

Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore				Length	Bore				Length	Bore	
375×55	168	m/m 111.12	m/m 25.4	Central	700×100	112	m/m 150.	m/m 38.09	Central	1000×150	210	m/m 185.	m/m 60.32	m/m Central
300×60	16	111.12	25.4	Central	"	176	178.	44.45	Central	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	"	179	178.	55.	132/46	"	149	185.	55.	Central
"	172	130.	38.09	Central	650×125	119	178.	55.	132/46	"	155	220.	66.67	Central
575×60	21	160.	28.	Central	"	147	178.	55.	Central	"	166	185.	55.	125/60
"	180	150.	38.09	104/46	"	188	120.	34.92	Central	900×230	107	185.	55.	Central
"	186	120.	34.92	Central	750×125	77	178.	44.45	132/46	"	108	185.	55.	125/60
"	90	150.	38.09	Central	"	92	185.	55.	135/50	"	128	220.	66.67	Central
650×65	78	178.	44.45	132/46	"	95	185.	55.	Central	"	137	250.	80.	Central
"	79	178.	44.45	Central	"	99	178.	38.89	132/46	"	157	185.	80.	Central
"	100	178.	38.09	132/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
"	101	178.	31.75	132/46	"	176	178.	44.45	Central	1100×220	134	220.	66.67	Central
600×75	21	160.	28.	Central	"	179	178.	55.	132/46	"	136	250.	80.	Central
"	180	150.	38.09	104/46	800×150	161*	185.	55.	135/50	975×225	192	185.	60.32	Central
"	186	120.	34.92	Central	"	162*	185.	55.	Central	"	194	185.	55.	125/60
"	190	150.	38.09	Central	"	163*	185.	66.67	135/50	1250×250	133	250.	80.	Central
700×75	78	178.	44.45	132/46	"	169†	185.	55.	135/50	"	154	304.8	101.6	Central
"	79	178.	44.45	Central	"	177	185.	55.	135/50	1500×300	115	304.8	101.6	Central
"	100	178.	38.09	132/46	"	183	185.	55.	Central	"	126	304.8	152.4	Central
"	101	178.	31.75	132/46	"	211*	185.	60.32	135/50	1750×300	139	400.	152.4	Central
700×100	77	178.	44.45	132/46	1000×150	167	185.	55.	125/60	"	191	350.	150.3	Central
"	92	185.	55.	135/50	"	174	250.	80.	Central	1750×350	193	400.	125.	Central
"	95	185.	55.	Central	"	182	185.	55.	Central					
"	99	178.	38.89	132/46	"	187	220.	66.67	Central					
					"	201	185.	60.32	125/60					

*Wheels Nos. 161, 162, 163 and 211 are of stronger type than the other wheels for 800 × 150 tyres. †Wheel No. 169 is fitted with Ball Bearings.
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



AT HAMBLE.—A general view of the 2s. 6d. and 1s. enclosures from the lower end of the 5s. enclosure (which itself extended for hundreds of yards behind the camera). The machine is the Imperial Airways Hampstead.

Eventually one discovered that, as necessarily happens in the circumstances in which air racing is flown, the handicaps were only available half an hour before the start of the race, for which, incidentally, there were twenty-four entries, and that the delay was caused by getting the twenty-four machines into line in the right order of their handicap. The result was that machines got into their wrong positions and that they had to be taxied out onto the aerodrome and put into other positions, and that all this shifting about took pretty nearly another hour.

The officials who were responsible admitted afterwards that what they ought to have done was to have pegged out positions on the ground for about thirty machines, each distinctly numbered, and to have given each competitor a number so that he would know exactly where to put his machine as soon as his handicap was allotted. This was just one of the things that people have to learn from experience. And an entry of between twenty and thirty machines in a race is rather more than was to be expected at a first attempt like this.

THE FLYING-BOAT SHOW.

During this delay the third event on the programme happened. Three Supermarine Southamptons (Napier Lions) from the R.A.F. Base at Calshot, under the command of Sq. Ldr. I. T. Lloyd (O.C. 480 Coastal Reconnaissance Flight), arrived over the aerodrome pretty well on programme time, having taken off from Calshot according to the clock without regard to programme troubles.

They flew low enough over the aerodrome for everybody to have a good look at them. The sun was shining brightly at the time, and they gave all those thousands of people an excellent and very unusual view of what is to-day certainly the finest twin-engined flying-boat in any Service in the World.

Later five Gloster Gamecocks (Bristol Jupiters) from 43 Squadron, commanded by Sq. Ldr. A. F. Brooke, took off in quite close formation considering the gustiness of the wind, and flew round after the Southamptons to give people a notion of the relative size and speed of the big flying-boats and the little single-seaters. Altogether it was a very pretty show and most useful in promoting air-mindedness.

THE WAKEFIELD RACE.

The first past the post in the Wakefield Light Aeroplane Handicap was Flt. Lt. le Poer Trench on the Halton I (Cherub III) who flew an excellent race and showed that the machine is quite one of the best light aeroplanes yet produced. Unfortunately he was disqualified for not carrying a passenger, having been handicapped on the supposition that he would do so. Mr. Twins on the two-seater Bristol was also disqualified, for cutting a corner too close.

The race was actually won by Mr. L. J. C. Mitchell on the London Aeroplane Club's single-seat Bristol Brownie (Cherub III) with Flt. Lt. J. A. Gray on an Avro Avian (Cirrus Mk. II) second, and the Hon. Geoffrey Cunliffe on one of the Hampshire Moths (Cirrus) third.

AN UNPLEASANT INCIDENT.

During the finish of this race an unpleasant incident occurred. The two Brownies and the Halton were some distance ahead of the rest of the field. The Hampstead, which had taxied over to take-off from the far side of the aerodrome with a full load of joy-riders, proceeded to cut right across the front of the whole of the rest of the competitors, about a dozen of whom were finishing in a bunch. The Hampstead did manage to get clear of the aerodrome before the leader of the bunch actually came into it. But the sight of the big machine taking off right across the track must have been fairly unerving to some of the less experienced pilots.

To make matters worse the Surrey Flying Services' Avro, which was also joy-riding, took-off after the Hampstead across wind in the same direction as the competitors in the race and then swerved out to the right before reaching the finishing line. And it started so late that it appeared to be actually mixed up with the competing machines.

One does not know who the pilot of either machine was at that moment, so one can say without any personal feeling that both of them ought to be severely reprimanded for behaving as they did. Both of them must necessarily be very experienced pilots or they would not be in their present jobs, and they ought to know better than to go taking-off like that, right in the middle of a race.



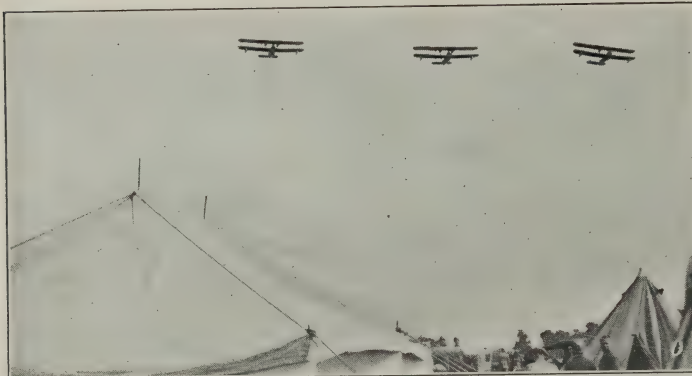
SOME PILOTS AT HAMBLE.—The Hon. Lady Bailey (The London Aero Club); Wing Cdr. W. Sholto Douglas, M.C., D.F.C.; Flt. Lt. D. V. Carnegie, A.F.C.; Sq. Ldr. W. H. Longton, D.F.C., A.F.C.; Flt. Lt. C. F. le Poer Trench; Capt. A. G. Lamplugh (The London Aeroplane Club); Mr. Alan Goodfellow (The Lancashire Aero Club); and Major K. M. Beaumont, D.S.O. (The London Aeroplane Club).



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



As a matter of fact, people who run air meetings ought to have a definite rule that joy-ride machines must either stay in the air or stay on the ground while races are in progress. And no joy-ride machine ought to be allowed to start unless given a signal either by a flag or flashlight from a ground official appointed for the purpose.

UTILITY AND COMIC RELIEF.

The next event was a Light Aeroplane Utility Race in which four Moths, standing folded behind posts representing sheds, had to be wheeled out onto the aerodrome, unfolded, started, flown round a course, landed, folded again and put back in their sheds.

This event was won by Mr. G. I. Thomson, the Hampshire Club's very competent instructor, with Mr. Parkinson of the Newcastle Club second.

Thereafter came the comic relief of the Meeting, a "Pageant of Travel" Relay Race. In this three competitors, arrayed respectively more or less as a Cave-Man, an Ancient Roman and Dick Whittington, raced to three horsemen, also in fancy dress of some kind, who in turn raced to three cyclists on push-bikes of about the year 1890, who again raced to three motorists on the most modern type of Morris-Oxford, who again raced to three aviators on Moths. Who represented what one could not discover, but the winning aeroplane was G-EBRC, an Avro Avian (Cirrus Mark II), with Mr. Parkinson on one of the Newcastle Moths second and Mr. Thomson on a Hampshire Moth third.

Some humorist at the beginning of this race inquired from a member of THE AEROPLANE whether this was "C. G.'s" Nordic Race starting.

THE PRIZE LOTTERY.

Somewhere about this time the broadcaster announced the numbers, printed on the backs of programmes, which had won free joy-rides in the Handley Page Hampstead. Somebody remarked, apropos the Hampstead, that Imperial Airways might have been a bit more Imperial and might have sent down a machine named after some place in the British Empire instead of sending the *City of New York*, and added "with Rogers as the Statue of Liberty."—At that moment Mr. Rogers happened to be standing up in the nose of the machine contemptuously scratching his head, or adjusting his bonnet, so that his hand was in much the attitude of that of the Statue of Liberty holding the torch.

The drawing for these prizes was done by Mrs. A. V. Roe. Nobody more appropriate could have been selected. For, when you think of it, the whole of this vast show was really based on a long chain of circumstances at the extreme beginning of which was that funny old

THE OVERLAND ROUTE.—The formation of Supermarine Southampton (Napier Lions) over the aerodrome.

triplane on which A. V. Roe used to cavort around Lee Marshes. From it came the vast business which is now A. V. Roe and Company Ltd., and the aerodrome on which the Pageant was held is the Avro Aerodrome.

Many of us old-timers were pleased to see A. V. himself, looking extraordinarily young and fit, surveying the scene with quiet satisfaction in the rôle of an unofficial spectator. Many a man under the circumstances would have insisted on being the head and front of the proceedings, or the Big Noise of the Occasion. But A. V. always has been personally the most modest of men. Which is perhaps why his services to the nation have never been recognised in any way. The only other reason for their not having been recognised is that their value is so great that it cannot be estimated.

THE PRESIDENT'S CUP.

The next race was the President's Cup Race, for any aircraft having an engine of not more than 100 h.p. Somebody remarked that when you looked at the mixture in it the Programme might have called it the Coupe Jacques.

This race was also won through a disqualification. The first pilot the post was Sq. Ldr. C. A. Rea on the Boulton and Paul P.9. (R. engine). He was disqualified for cutting a corner, so the first prize went to Flt. Lt. le Poer Trench on the Halton (Cherub), with Mr. Thomson on the Hampshire Moth second and Mr. G. H. Craig on the London Aeroplane Club's Bristol Brownie (Cherub) third.

The next thing was a very good display of formation flying by the Gloucester Gamecocks (Jupiters) of 43 Squadron from Tangmere. The pilots were a very mixed bag, consisting as they did of Flt. Lt. C. R. Smythe (the Leader), Flg. Off. (Lieut., R.N.) C. W. Byas, and Sergeant Pilot E. F. H. Wells, D.F.M. They flew very well indeed. By the time the clouds had settled down again so that they looped in formation into the clouds and reappeared out of the clouds still in formation.

A GOOD SHOW.

About tea-time Flt. Lt. Calvey on a Gloucester Gamecock (Jupiter) gave another very good show of stunt flying. Again his performance was spoiled by the low clouds and the gusty wind. Although he is credited with having flown upside down for $7\frac{1}{2}$ minutes, which is generally admitted to be longer than anybody else has ever done so, he could only stay upside down for a matter of seconds, because in order to come so within sight of the crowd he was so low down that it was unsafe to stay upside down any longer. Also there was no room for him, either downwards or upwards, to do that very effective trick of his, two rolls vertically upward following a long steep dive. But he certainly showed himself to be an absolute master of his art.

The last event of the day was a race open to all types of machine for the Challenge Cup presented by Mr. W. R. Morris of Oxford and Cowley. This produced thirty entries and was won by Mr. B. Youell of Imperial Airways Ltd. on an S.E.5a (Viper) recently reconitioned by A.D.C. Aircraft Ltd. The second was Mr. Alan Butler on his famous D.H.37 (Puma) "Lois" née "Sylvia," with Mr. D. A. N. Watt third on his brown S.E.5a (Viper).

This was a really fine race, for the short markers cut down the field in the very best handicap style and put up quite a thrilling finish. The unfortunate thing was that by this time the hour was late and the wind was so cold, and some people were so farsighted about traffic jams, that more than half the spectators had faded away.

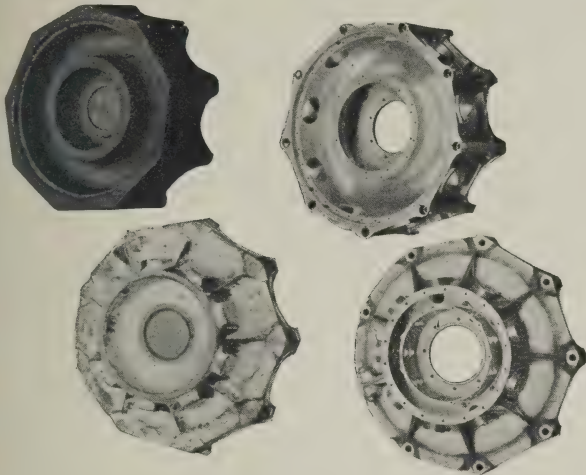
—C. C. G.



AT HAMBLE.—43 Squadron's Gloucester Gamecocks (Jupiter engines).

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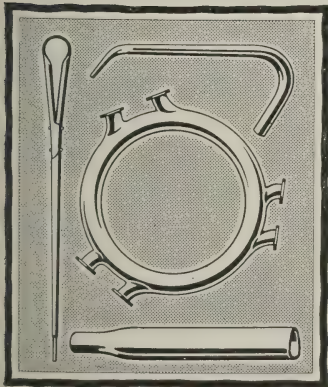
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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 16; Tuesday, 18; Wednesday, 17; Thursday, 20; Friday, 20; Saturday, 21; Sunday, 5.

IMPERIAL AIRWAYS LTD.:

Paris—London: London—Brussels—Cologne: Machines 40, passengers 417, freight 17 tons.

AIR UNION:

Paris—London: Machines, 35; passengers, 91; freight 12 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines, 15; passengers, 58; freight, 4 tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 12, passengers 45.

SABENA:

Brussels—London: Machines 12, passengers 42.

PRIVATE:

Machines 3, passengers 3.

Total number of trips by British Machines, 43, carrying 414 passengers. Foreign Machines, 74, carrying 236 passengers.

Comparative Figures:

Week ending May 15:

Machines, 117; Passengers, 650; Crews, 192; Total personnel, 522.

Corresponding week, 1926:

Machines, 165; Passengers, 677; Crews, 221; Total personnel, 898.

Corresponding week, 1925:

Machines, 154; Passengers, 538; Crews, 191; Total Personnel, 739.

Corresponding week, 1924:

Machines, 81; Passengers, 271; Crews, 130; Total personnel, 401.

Corresponding week, 1923:

Machines, 105; Passengers, 353; Crews, 175; Total personnel, 526.

Corresponding week, 1922:

Machines, 162; Passengers, 337; Crews, 195; Total personnel, 532.

Corresponding week, 1921:

Machines, 89; Passengers, 350; Crews, 106; Total personnel, 456.

Corresponding week, 1920:

Machines, 91; Passengers, 138; Crews, 98; Total personnel, 236.

Croydon Notes.

Or should one in future give to these notes the heading, "Cobham Field Notes," in view of the following paragraph from Thursday's Daily Mail?—

"In deference to Mr. Herrick's warning, Mr. Chamberlain and Mr. Bertrand, the American airmen, have postponed until Saturday their attempt to fly to Paris.

"Any anti-American feeling which may exist in France is so ill-founded," they say, "that it can exist only a few days, but we won't go to Paris if they don't want us. We will fly over and around the Eiffel Tower, touch our wheels at Le Bourget, and then go to London and land at Cobham Field. We hoped for Nungesser's success as much as anyone in France did."

Of course, as Sir Alan Cobham explained, it is quite a natural mistake for an American unversed in our ways to make. After all, in America they call their aerodromes "Fields" and name them after their pioneers. He himself they know well over there, so there you are. What could be simpler?

There was some doubt as to whether "Cobham Field" meant Croydon or Stag Lane, but one feels that as Croydon is the biggest civil aerodrome in the country, the reference must necessarily be to Croydon.

The Air Union is running an experimental night service from London to Marseilles. The machine leaves Croydon at 21.30 hrs. and reaches Bron Aerodrome, Marseilles, at 6.00 hrs. the following morning.

The particular machine prepared for the service is a Goliath fitted with four sleeping berths and looks extremely comfortable. M. Bajac made the first flight on Sunday. He left Croydon at 21.30 hrs. and after an uneventful flight reached Bron shortly after 06.00 hrs. on Monday morning.

Four experimental return trips are to be made and if these are successful a regular service will be open to the public.

A notice which has caused a certain amount of concern has been circulated by the Company to the pilots and staff of Imperial Airways. This states that before 4 p.m. there is to be no smoking "in, on or about the precincts of the aerodrome." One is fairly certain that this does not apply, nor was it ever intended to apply, to any of the employees of Imperial Airways when in the Aerodrome Hotel or any similar place. Nor probably is it intended to apply to anyone in their own private office. It is merely the application of ordinary business rules enforced in public offices.

Nothing can look worse and more sloppy to embarking or arriving passengers than to be met by officials with pipes and cigarettes in their mouths and to see officials hanging about the offices smoking.

After all, when one boards a sea-going liner one does not see the officer and crew smoking all about the ship, though no one would expect them not to smoke when in their own cabins or in the recreational parts of the ship. One imagines that the same interpretation can be put on a rule which has made "in, on or about" a sort of catch phrase at the aerodrome.

Although the new aerodrome buildings are nearing completion there is as yet no sign of the Barclay Perkins' hotel and it really is time that something was done. Any form of temporary building is scarcely likely to be adequate when one considers that it will have to cater in addition to present requirements for A.D.C. Aircraft as well—G. D.

Stag Lane Notes.

THE DUCHESS OF BEDFORD'S FLIGHT.

On Apr. 21, with Mr. C. D. Barnard as pilot, the Duchess of Bedford left Woburn Abbey, Bedfordshire, in a De Havilland Moth (Cirrus Mk. II) G-EBPM, for a 4,500-mile tour of Europe and Northern Africa. In addition to the pilot and passenger it carried three suit cases, one small attaché case, two cameras, four spare tins of petrol and an extra six-gallon tank under the main tank. Which indicates that it was a very good Moth!

The outward trip was by way of Paris, Bordeaux, Biarritz, Madrid, Seville, Tangier. The return was made by way of Malaga, Granada, Seville, Barcelona, Lyon and Paris.

They crossed the Pyrenees at 8,000 ft., and the Guadarramas and Sierra Nevada at 10,000 ft.

They met no trouble of any kind, and only by way of precaution did Mr. Barnard clean the filters at Barcelona.

The Duchess, who has travelled widely, enjoyed the flight immensely. She is convinced that the aeroplane is the best vessel of travel and in no other form of transport has she travelled so far with such lack of fatigue.

THE PRIVATE OWNERS.

Mr. Alan Butler, the Chairman of the De Havilland Company, has returned from a trip with Mrs. Butler to the West Indies, the United States, Canada and Newfoundland, in his yacht *Lois*. Mr. Butler is the holder of a "B" licence and a Class I Navigator's certificate. He has quite recovered from his recent illness.

Sir Alan Cobham last week bought a D.H.51 for his own personal use. Three D.H.51s have been built. Lord Carbery in Kenya has one, Air Commodore Weir has another.

Lady Bailey, who has now completely recovered from her argument with an aircrew, has lately flown several times between Stag Lane and Newmarket, where she has stables. She flew there for the One Thousand Guineas race and, one gathered, quite upset the Stewards.

It may be recalled that many years ago the officials of a certain horse-racing place objected to the presence of motor-cars on the grounds that it would frighten the horses! So once again history plagiarises.

On Saturday, May 7, Sir John and Lady Rhodes flew from Stag Lane to Norwich and Bircham Newton and back to Stag Lane. The following day he flew to Bristol and Winchester. On both days he returned in the evening to Stag Lane.

Lord Ossuiston has been flying constantly between Chillingham Castle, Northumberland, and London. He has also been giving instruction to Capt. Milburn, the Polo player.

Mr. David Kittel lately flew via Croydon, Ostende, Brussels, Cologne, and down the Rhine to Hengelar. He returned by way of Rotterdam.

THE D.H. GAZETTE.

The ninth issue of the D.H. Gazette is now issued. It is full of interesting news and photographs, and is even better edited and printed than before. Copies of it can be obtained on application to the De Havilland Company.

A Moth-er Abroad.

Major Allister Miller, D.S.O., A.F.C., member of the Legislative Assembly of the Union of South Africa,—who did such good recruiting work by aeroplane during the War 1914-18, after distinguishing himself in France—has acquired a Moth and a few weeks ago he made a tour of 2,300 miles during the South African Parliamentary Recess. Although no forward arrangements were made Major Miller, with a passenger and luggage, completed his tour to schedule.

The following was Major Miller's approximate time table:—

Apr. 15.—Departure 1 p.m.; due at Mossel Bay 4 p.m.

Apr. 16.—Leave Mossel Bay 6 a.m.; arrive Port Elizabeth 9 a.m.; leave 10; Grahamstown 11 a.m.; leave 2 p.m.; arrive East London 3.30 p.m.

Apr. 17.—Leave East London 6 a.m.; arrive Umtata 8 a.m.; leave 9.30; arrive Durban 12.30 p.m.

Apr. 18.—Leave Durban 6 a.m.; arrive Swaziland 9 a.m.

Apr. 19.—Mbabane.

Apr. 20.—Leave Mbabane 6 a.m.; arrive Pretoria 8.30 a.m.

Apr. 21.—Leave Pretoria 9 a.m.; arrive Johannesburg 9.30 a.m.

Apr. 22.—Leave Johannesburg 6 a.m.; arrive Klerksdorp 7.30 a.m.; leave Klerksdorp 8.30 a.m.; arrive Kimberley 10.30; leave Kimberley 11.30, arrive De Aar 1 p.m., leave De Aar 2.30, arrive Beaufort West 4.30.

Apr. 23.—Leave Beaufort West 6 a.m., arrive Oudtshoorn 7.15 a.m.; leave Oudtshoorn 8.30 a.m., arrive Swellendam 10 a.m.; leave Swellendam 11 a.m., arrive Cape Town 12.30 p.m.

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"The Aeroplane,"
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SUPERMARINE EXPANSION.

The following information, taken from a Southampton paper, is of particular interest. This expansion of the Supermarine firm indicates that merit is reaping its just reward. The firm stuck doggedly to flying-boat design when such craft were in disfavour and now the foresight of Squadron-Commander Bird is being justified. Congratulations.—C. G. G.

The Supermarine Aviation Works Ltd., of Woolston, Southampton, which has made remarkable progress of recent years, completed negotiations at the end of last week for the acquisition of the Hythe seaplane shed, adjoining the works of Messrs. R. Kemp and Co. Ltd., at Hythe, near Southampton.

The shed, which is as large as Olympia, was built by the Government during the war and allocated to Messrs. May, Harden, and May for the purpose of erecting seaplanes and flying-boats. Very little work of this nature was done there, however, as the war ended just as the shed was completed. For several years it has lain idle.

In order to cope with the steady growth of their business the Supermarine Aviation Works Ltd. have from time to time extended their premises at Woolston, and, owing to the impossibility of further extension on property immediately adjacent to the existing works, it was decided to acquire the spacious and well-adapted premises at Hythe.

The firm are now the owners of the largest seaplane and flying-boat shed in the whole of England. The extra accommodation places the firm in a position to fulfil any contract and to give prompt and early delivery dates. The present works will be entirely devoted to the manufacture of hulls and component parts, while the new works will be used for the assembly, erection, and testing of completed machines. The premises were occupied this week, and some of the hulls have been sent over from the Woolston Works ready for purposes of erection.

The new shed is located on the shore at Hythe, within convenient proximity to the new Fawley-Totton railway line, and a long slipway affords excellent facilities for launching aircraft. The premises can be reached from the works at Woolston by motor launch in 15 minutes.

The Supermarine Aviation Works Ltd., which was one of the pioneer firms in aviation, has steadily progressed into such a position that it is to-day recognised as the premier designing and constructing firm of flying-boats throughout the world.

THE FLIGHT ROUND THE ATLANTIC.

On May 13, Colonel the Marchese de Pinedo flew from Charleston S.C. to Pensacola, Fla., en route for New Orleans, where he will resume his original itinerary, which was interrupted by the accidental burning of his first Savoia 55 flying-boat, at Roosevelt Dam.

PERSONAL NOTICES.

DEATHS.

BENTLEY.—On May 13, at Henlow, Bedfordshire, as the result of a flying accident, Alfred Cyril Bentley, Flt. Cadet, R.A.F.

Mr. Bentley was awarded a Cadetship in 1925 from the School of Technical Training (Aircraft Apprentices), Halton.

CARTER.—At Haslar Hospital, on May 13, as the result of a flying accident, near Gosport, Richard Fenner Carter, Flg. Off. (hon. Flt. Lt.), R.A.F.

Mr. Carter was formerly a Lieut., R.N., and joined the R.A.F. with a S.S. comm. in March, 1924. After a course of flying instruction at No. 5 F.T.S., he was posted to No. 11 (Bombing) Sqdn. In November, 1925, he was appointed to Inland Area H.Q. Staff for armament duties. In January, 1926, he was posted to the R.A.F. Base, Leuchars.

FOOT.—On May 12, at Littlewick, near Maidenhead, as the result of a flying accident, William Alan Foot, Flg. Off., Reserve of Air Force Officers.

Mr. Foot was demobilised from the R.A.F. in 1919 and joined the Reserve in May, 1923.

GRAYSTON.—On May 14, at Margate, as the result of a motorcycle accident, F.S. Richard William Grayston, R.A.F., Manston.

HOLDEN.—On May 16, at Croydon General Hospital, as the result of a collision in the air at Kenley, on the same day, Arthur Leslie Holden, Flt. Off., No. 32 (Fighter) Sqdn., R.A.F.

Mr. Holden passed out of Cranwell in December, 1925, and was posted to No. 32 Sqdn. at Kenley for Air Armament Duties. Mr. Holden was a fine athlete and played full-back for the Cadet College while he was at Cranwell.

MACE.—On May 16, at Sealand, Chester, as the result of a flying accident, Arthur George Mace, Flt. Off., R.A.F.

Mr. Mace joined the R.A.F. with a S.S. comm. on Mar. 19, 1927.

MARRIAGES.

CLARKE—BEDDOME.—On May 10, at Wellington, New Zealand, Charles Clarke (late of the R.F.C.), son of the late Henry Clarke, of Bristol, to Beryl Brandon, daughter of the late Leonard Beddome, of Bromley, Kent.

LINDUP—REFFELL.—On May 12, at St. Peter's, Eaton Square, by the Rev. L. F. Hake, Flt. Lt. Charles A. Lindup, R.A.F. Medical Service, elder son of the late Mr. A. E. Lindup and Mrs. W. Freeman, Avonbank, Sutton, to Gladys, daughter of the late Mr. Raymond Reffell and Mrs. Reffell, of Wraybury, Bucks.

BIRTHS.

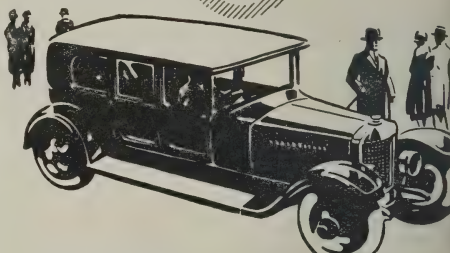
BOLAS.—On May 10, at Bristol, to Mr. and Mrs. H. Bolas—a daughter. **FRASER.**—On May 11, at Lockley Manor, Romsey, to Hester, wife of Sq. Ldr. H. M. Fraser, R.A.F.—a son.

ISAAC.—On May 15, at 60, Woodside Park Road, N.12, to Muriel, wife of Flt. Lt. Fred H. Isaac, D.F.C.—a daughter.

NICHOLAS.—On May 10, at "Delves," Farnborough, Hants, to Marian, wife of Sq. Ldr. C. H. Nicholas, R.A.F.—a daughter.

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THE AEROPLANE—MAY 25 1927.

The Great Flights

THE AEROPLANE

JUN 10 1927



INCORPORATING AERONAUTICAL ENGINEERING

Vol. XXXII. No. 21.

SIXPENCE WEEKLY.

[Registered at the G.P.O. as a Newspaper.]

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MAY 25,
1927.

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ON THE GREAT FLIGHTS.

This has been a week of great flights. Naturally the flight by Charles Lindbergh, on a Ryan monoplane (Wright Whirlwind engine) from New York to Paris more or less eclipses the rest, for not only is it actually the longest non-stop flight yet made, but it has the double sentimental attraction of having been made between the financial capital of the United States and the actual capital of France, that is to say, the capital of America and the capital of the Continent of Europe, and of including the crossing of the Atlantic non-stop for the second time in the World's history. Thus it overshadows the almost equally fine performance of Flt. Lt. Carr and Flt. Lt. Gillman on a Hawker Horsley (Rolls-Royce Condor engine) from Cranwell towards India.

For some time there was doubt as to which of these two flights actually covered the longer distance. Map measurements prove nothing, for in the first place the ordinary Mercator, or flat, map of the World does not give true measurements over long distance, and secondly the precise spot where our machine came down was for a while uncertain. This question was settled promptly when an appeal was made by this office to Lt.-Col. Ivo Edwards, Technical Advisor to the Director of Civil Aviation.

The air navigation specialists of the Directorate worked out the distance by what is technically known as Great Circle Navigation and decided that Lindbergh's distance was 3,588 miles whereas the distance covered by Carr and Gillman was 3,419 miles. These distances are stated to be accurate within a mile or so. But *The Times*, on the authority of the Great Globe at Kew, says that Lindbergh's distance is 3,639 miles and Carr and Gillman's 3,415. Possibly the said globe is not landed enough at the top. But in any case Lindbergh wins. The only doubt about Lindbergh's distance is the precise spot on Long Island from which he started and the only doubt about the Carr and Gillman distance is whether the place where they alighted in the sea was two or three miles off the Quoin Light on the Persian coast. Consequently there is no doubt that Lindbergh beat Carr and Gillman and that the British aviators beat the French record of 3,343 miles from Paris to Jask. Thus we have a certain small satisfaction in having got our own back from our gallant French rivals.

Our people are singularly unlucky in having made their flight on the same day as the trans-Atlantic flight, for if they had been a day or two in front they would at any rate bring that time have held the whole attention of those who are interested in long-distance flying. Nevertheless their flight was glorious, and we can rejoice that they were saved on the sea, for the odds against being picked up in the Persian Gulf are nearly as great as the odds against being picked up in the Atlantic.

Besides these two great non-stop flights the past week includes the finish of the R.A.F. Service flight from Cairo to the Cape and back, a distance of 11,000 miles, by four Fairey IFs. (Napier engines) under the command of Air Com-

modore Samson. This in its own line is another great triumph for aviation.

Also this week includes the return to Europe of that great Italian aviator, Colonel the Marchese de Pinedo in his Savoia twin-hull flying-boat (Isotta Fraschini Asso engines) after crossing the Atlantic from Newfoundland by way of the Azores.

On the recognised principle that the record performance of to-day becomes the standard performance of to-morrow, all these flights indicate the immense future which lies before Civil Aviation. Many years may pass before we have a regular trans-Atlantic service by flying-boat or aeroplane, but such a service will come in due time, probably with fixed intermediate stopping places in mid-Atlantic, as has been suggested by various inventors of the obvious. But long before then we shall certainly have a regular three-day service to India, with a branch line to the Cape and back.

Those who regard record-breaking performances as mere stunts will do well to remember in future years the great flights of this week, in which the World's main air routes have been so clearly indicated.

LINDBERGH'S RECORD.

For every reason, priority of time, length of distance, and last but not least international courtesy, Lindbergh's flight deserves to be discussed first.

Charles Lindbergh is 25 years of age. He was born at Little Falls, Minnesota. St. Louis, Ill., found the sportsmen who backed his gallant venture. And his mother is a teacher of chemistry in the High School, Detroit, Mich.

He learned to fly about four years ago, as an officer of the National Guard, and became an air mail pilot.

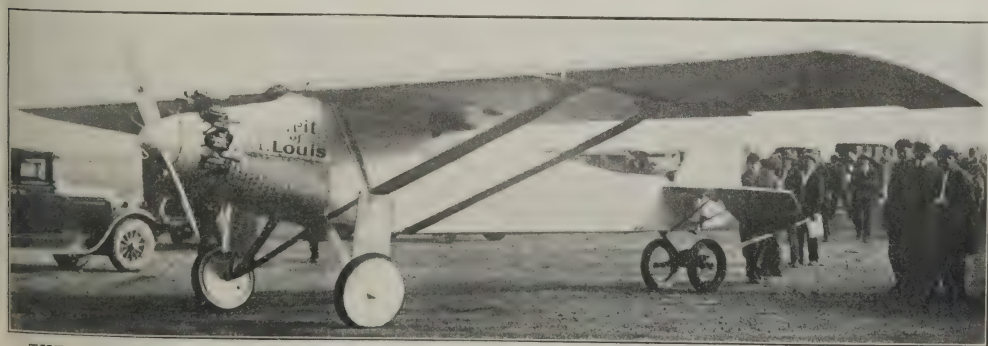
That is about as much as is known of his birth and parentage and career. It gives several States reasons for rejoicing.

Judging by his name and his appearance he is distinctly of Scandinavian origin, probably Swedish. The "h" at the end of his name looks Dutch, but that is probably the result of "fonetic" spelling as practised in America. In any case, he is very obviously a thorough-bred Nordic. Which fact will doubtless be highly satisfactory to the real white population of the United States,—and is a consolation to us in this country.

A CATERPILLAR STAR.

Before embarking on his trans-Atlantic scheme Lindbergh had acquired fame among aviators in the United States through having saved his life four times by means of a parachute. Thus he was the star turn of that curious body, devoid of organisation, known as the Caterpillar Club. The only people eligible for membership are those whose lives have been saved by jumping with parachutes from aircraft. The Caterpillar name and badge were adopted because the silkworm makes silk and parachutes are made of silk.

According to that interesting American publication, *Slipstream*, of Dayton, Ohio, the Caterpillar Club was started by two members of the staff of the *Dayton Herald*, Messrs.



THE NON-STOPPER.—The Ryan M.2 "Spirit of St. Louis" (Wright Whirlwind) on which Capt. Charles Lindbergh flew from San Diego on the Pacific to Paris with only two stops—at St. Louis and New York. 6,100 miles in 54 hours 54 mins. actual flying time.

Hutton and Timmerman, and by Mr. St. Clair of the Parachute Unit at McCook Field.

At the beginning of May 1927 forty-five lives had been saved in America in this way. And of these lives four were Captain Lindbergh's.

Once he landed out of a collision with another machine at 5,000 feet, once when a civil aeroplane which he was testing broke under him, and twice on the St. Louis—Chicago air mail run.

A MAN OF PARTS.

The more sensational newspapers chose to label him "The Flying Fool," but from all one can gather of his flying career and from what one may judge of his great flight Captain Lindbergh is an extremely level-headed painstaking pilot who made up his mind to take one almighty big risk for 36 hours in order to achieve World-wide fame. That is not the act of a fool, it is a risk which a brave and ambitious young man is justified in taking at least once in his life-time.

So far as the flight itself is concerned, people may say, and quite rightly so, that it teaches us nothing. We all knew that given reasonable luck an engine can run for 36 or 48 or 100 hours without stopping. We all knew that an aeroplane could lift enough load to fly for 48 hours without stopping. So, given good luck and having nothing happen to the hundred and one little things which may stop an engine, there is nothing to prevent anybody from flying the Atlantic. Lindbergh, merely backed his luck against the one hundred and one little things.

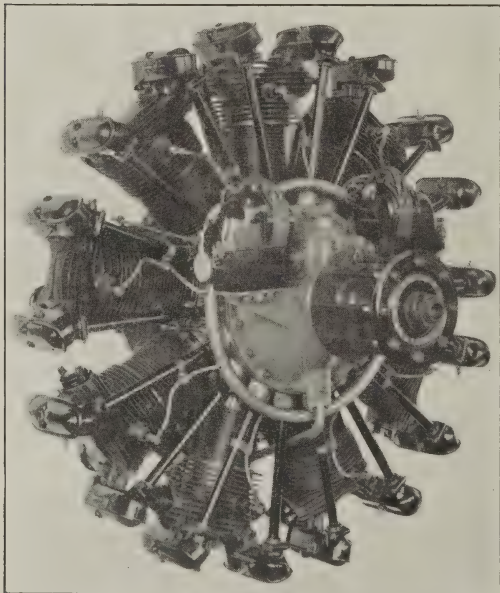
But the really remarkable feature about the flight was his navigation. Possibly he had some luck here, in that the wind did not change direction very much while he was crossing the Atlantic. But he can have done no real navigation on the way even if he knows anything about scientific navigation, which is doubtful. He must have placed absolute trust in his compass and his own judgment of drift.

There are undoubtedly certain people who as pilots say are "born with a compass in their heads" and have a natural gift for finding their way across country or across the sea. Among our own notable pilots one can mention Sir Alan Cobham and Mr. Frank Courtney as having this particular gift. And thanks to that gift Lindbergh made good.

DEPARTURE AND ARRIVAL.

Lindbergh's time-table was roughly as follows:—

He left the aerodrome on Long Island at 12.50 hours on Friday, May 20, and reached Nova Scotia at about 19.00 hours.



THE NON-STOP ENGINE.—The Wright Whirlwind J5, with enclosed valve-gear, with which Capt. Lindbergh flew the Atlantic in the Ryan M.2, after flying from San Diego to New York stopping only at St. Louis. A Wright Whirlwind in a Bellanca recently put up the World's

Duration Record to 51 hrs.



"ALONE I DID IT."—Capt. Charles Lindbergh, the hero of the Lone Hand flight from New York to Paris.

He passed St. John's, Newfoundland, somewhere about midnight. (Fancy having to fly for eleven hours before even beginning the Atlantic flight!) At 16.00 hours on May 21 he was sighted by a Canadian Pacific liner about 500 miles East of Newfoundland. At 13.00 hours he was sighted by the *s.s. Hilversum* 500 miles from the Irish coast. At 17.20 hours he passed over the coast of County Kerry, Irish Free State, and at 19.40 hours he passed St. Germans in Cornwall. At 20.30 hours he was over Cherbourg, and at 22.22 hours he arrived at Le Bourget, the air port of Paris.

There he was rescued from an over-enthusiastic crowd and was greeted by Mr. Myron T. Herrick, the American Ambassador to France.

His subsequent doings have been so intimately chronicled by the daily Press that there is no need to deal with them in this paper. Readers of *THE AEROPLANE* will find more interest in various little points about the flight itself.

PREPARATIONS FOR THE FRAY.

To begin with, the evening before starting his flight he went off alone sightseeing in New York, which was certainly very much better for his nerves than being worried by an arranged entertainment, complete with good-advisers and autograph collectors.

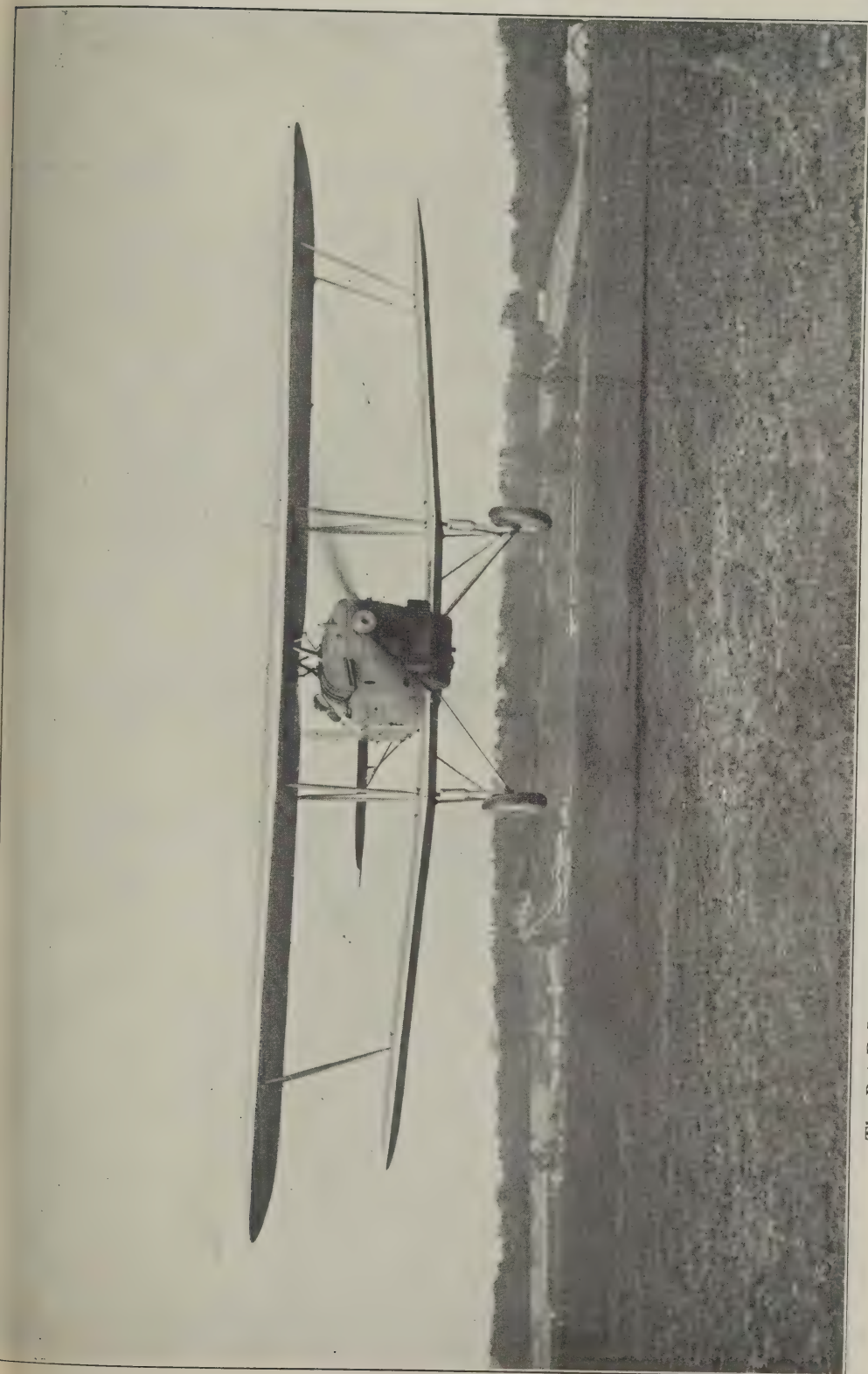
For the flight itself his only provisions were a few sandwiches and about a quart of water, though he took with him a certain amount of caffeine and other stimulants in case he felt sleepy.

As a matter of fact, sleepiness is the great danger on a flight of this kind, for the steady hum of the engine, especially in an enclosed cabin, and the accompanying gentle vibration, has a distinctly numbing effect on the brain. And continual watching of figures on the various indicators and on the compass has an almost hypnotic effect.

Lindbergh had not even a straight-ahead view from his cabin and could only watch the surrounding country and water through side windows, though apparently he had some kind of periscope arrangement to give him a straight sight ahead to check his course against his compass.

So far as one can gather the only equipment he had of a life-saving nature consisted of flotation bags fitted in the machine itself to keep it afloat for a while in case of a descent in the water.

Thanks to favouring winds his flight was rather quicker than he had expected and when he arrived at Le Bourget Lindbergh had enough petrol in the machine to have carried him another thousand miles, or, alternatively, to have kept



The R.A.F. Long Distance Flight. The Hawker Horsley (Rolls-Royce Condor) Load-Carrier.

him in the air for another ten hours. Which was a very wise and adequate safety allowance.

According to various reports Lindbergh said that he flew through rain for more than 1,000 miles over the Atlantic, and that at one time shortly after leaving the coast of Newfoundland he met snow and hail which were so bad that for a time he debated with himself whether he should turn back or not.

His own account of his experiences as published in *The Daily Express* says that during this period he flew as low as ten feet over the water to try and get under the storm and then climbed to 10,000 feet to try and get over it. The weather improved after dawn and the rest of the way the weather was fine.

He himself says that he ran his engine at about three-quarter throttle for the whole flight except when starting and when trying to climb over the storm. The machine carried 451 gallons of petrol and 20 gallons of oil.

The only immediate reward for this fine flight is the prize of £5,000 offered by Mr. Raymond Orteig, an American-Frenchman or a French-American, for the first flight between Paris and New York in either direction. Newspaper imagination has placed at anything up to £1,000,000 the sum which Lindbergh will eventually get for movie rights, appearances on public platforms, lectures, books and so forth.

If one is not mistaken in one's judgment of men, the money side of the flight was probably what interested him least. He is just the type of aviator who would take on a job of that kind not so much for the honour and glory of doing it as for the mere fun of doing it. And whatever reward he gets he deserves all of it.

THE RYAN RECORD.

The machine which Lindbergh flew was a Ryan monoplane built to the order of a group of St. Louis business men who knew something of his ability as a pilot from his work on the St. Louis-Chicago mail run. And soon as the financial arrangements were fixed Lindbergh arranged to have a machine specially built for the job by Ryan Airlines Inc. of San Diego, California. Hence the name "The Spirit of St. Louis" painted on the nose of the machine—though from what one heard when one was in the States nigh on three years ago the Spirit of St. Louis was carried in aeroplanes rather than on them, and it was not the noses of the machines which it painted.

Ryan Airlines was founded about five years ago by Mr. T. C. Ryan, to operate flying fields along the Pacific Slope. For eighteen months the firm ran a mail and passenger line between San Diego and Los Angeles. Then they started building their own machines at San Diego and built the M.1, several of which they sold to the Pacific Air Transport Co. for the Seattle-Los Angeles mail line. Early in 1927 the firm was reconstructed as Ryan Airlines Inc.

Mr. Ryan himself ceased to be connected with the con-

structional side of the business and Mr. B. F. Mahoney became President of the firm. So to him primarily, and to his unknown chief designer, must go the credit of producing this truly remarkable aeroplane.

The specification of the machine is as follows:—

Span	46 ft.	Max. speed with full load	123 m.p.h.
Chord	7 ft.	Cruising speed (2 throttle)	approx. 105 m.p.h.
Gross Weight	4,750 lbs.	Minimum speed with full load	60 m.p.h.
Power Plant	200 h.p. Wright Whirlwind	Cruising speed with fuel and used	95 m.p.h.
Gasoline—425 gal.	2,550 lbs.	Maximum propeller efficiency	74 per cent. approx.
Oil—28 gal.	195 lbs.		
Wing Loading ...	14.9 lbs to sq. ft.		
Power Loading	21.6 lbs. to b.h.p.		

A remarkable feature about its production is that it was actually taken up on its first test flight on the sixtieth day from the time when its design was started.

Mr. Mahoney and his designer and the staff of the Ryan company deserve every possible congratulation on the firm achievement of their ship. That a young firm, unknown outside its own immediate circle in the Western States should suddenly burst upon the world as the designers and producers of such a record-breaking aircraft shows that we need not despair of real progress in aviation. The makers have proved that all the aeronautical brains in the world have not been cornered by the great aircraft constructors of the various nations, and they give us all reason to hope that we may live to see aeroplanes which can be flown as commercial proposition like any other vehicle.

THE WRIGHT ENGINE.

The engine is a standard Wright Whirlwind with the new type enclosed valve-gear. The Wright Whirlwind is certainly the most popular and reliable engine of its power in the world. And aviation all over the world owes much to Mr. Charles Lawrance, the President of the Wright Company, who, with wealth enough to be one of the leading young men in New York society, chose to devote himself and his wealth to the design and production of aero engines.

By setting up the World's Duration Record on April 1, 1927, the Wright engine proved its reliability. And the fact that it is the most used engine in the U.S. Flying Services and in the newer types of aeroplanes which need an engine in the 200 h.p. class shows what the American themselves think of it.

This great flight from America to the Continent of Europe merely confirms the high reputation which the engine has already won. Mr. Lawrance deserves all the congratulation which he will certainly get for the performance of the Whirlwind and all the profit which he will subsequently make out of it.

Finally, on behalf of all concerned with British Aviation one congratulates American Aviation on this great American success. We in this country are not jealous.



BEATEN BUT NOT DISGRACED.—Filt. Lt. L. E. M. Gillman (left) and Filt. Lt. C. R. Carr, D.F.C.—The pilots of the Hawker Horsley.

CAIRO CAPETOWN CAIRO



The Fairey III F Aeroplane fitted with Napier "Lion" Engine.

The successful termination of the 1927 Royal Air Force Cairo—Capetown—Cairo flight under the command of Air Commodore Samson, C.M.G., D.S.O., A.F.C., brings to mind last year's trans-African flight under Wing Commander Pulford, O.B.E., A.F.C., when a similar Cairo-Capetown-Cairo journey was continued on to England with the machines converted to seaplanes. For both of these

flights Fairey aircraft were chosen, the former flight being undertaken by four Fairey IIID's and the latter by the same number of the new Fairey III F's. The aggregate distance of these two flights is over 100,000 miles. Both operations were carried out by all four aircraft strictly to a pre-arranged time schedule and trouble-free runs were recorded. Fairey-Reed Airscrews were used on the III F Aircraft.

FAIREY CRAFT

The Fairey Aviation Company, Ltd.
Hayes : : Middlesex.



LEAVING HOME.—The Horsley (Condor) being man-handled out of her shed at Brooklands, to fly to Cranwell.

we could not capture the World's Long-Distance Record ourselves we would rather see it held by our relatives in the States than by anybody else.

We must possess our souls in patience, with the consolation that after all the Atlantic was flown non-stop for the first time by a couple of Englishmen in an all-British aeroplane. And we must just hope that before very long an all-British outfit will bring a flying record of some kind to this country.

THE FLIGHT TO THE EAST.

The R.A.F. Service flight towards India has certainly proved to be a grievous disappointment to all of us in this country. For years no British aeroplane, engine or pilot has held a World's Record of any kind, and, given reasonable luck, this seemed to be our great opportunity of capturing the World's Long Distance Record, point to point, which is probably the most coveted record in the World, next to the record for absolute speed.

The Record for mere Duration in the air may go to a machine which has enormous lifting capacity and no speed, and is therefore useless for air transport service. The Record for mere Speed alone may go to a machine which is enormously fast but has no capacity for carrying any load but itself. Whereas the Distance Record must necessarily show that a machine has a reasonable turn of speed and that it has the capacity to carry a load which if passengers or goods be substituted for petrol, will still make a useful transport vehicle. And, after all, the transport of goods is the thing which mostly concerns a nation of shopkeepers like ourselves.

So far as this particular attempt on the record was concerned, everything looked good. We knew that the Hawker Horsley could carry the load for the distance. We knew that the Condor engine could stay the distance. And we knew that two such pilots as Flight Lieuts. Carr and Gillman would have no difficulty either in finding their course or in keeping the machine going for the necessary time. And we knew that the Horsley was fast enough to cover the distance in the time allowed by her petrol capacity.

At the time of writing, nobody in this country knows what was the actual cause of the descent in the Persian Gulf. There are so many little things which might cause an engine stoppage. Apart from the breakage of something

in the engine itself there is the possibility of magnet trouble or carburettor trouble or a broken oil-pipe or a broken petrol-pipe, any one of which might force the pilot to come down.

Whether we shall ever know the cause is doubtful. Whoever was piloting the machine at the time may have been able to spot the exact cause before the machine went into the water. But otherwise, unless the machine has been salvaged, there is no chance of finding out the cause.

The fact that they were exactly on their course when forced to alight shows that the piloting and the navigation were all that could be wished. Consequently, the crew are entitled to all the congratulations which would have been theirs if they had got through to India.

THE MEN WHO DID IT.

Flight Lieut. C. R. Carr, D.F.C., who is a New Zealander is recognised throughout the Air Force as being a pilot of the first class. Apart from being a good pilot he has proved himself to possess excellent organising abilities.

For the past two or three years he had been one of the stage-managers of the R.A.F. Pageant. His particular duties were to get all the machines into their proper places before the show began and to see that they all moved off at the right time to the proper positions in which to take off at the moment stated in the programme. And the fact that the R.A.F. Pageant has always been run with clock-like accuracy in accord with the hours in the programme shows how good his work has been.

Besides that he has shown himself to be of an adventurous disposition. He accompanied Sir Ernest Shackleton in his last expedition to the South Pole as the pilot of the Antarctic Avro which was to be used for reconnaissance on that ill-fated expedition.

Flight Lieut. L. E. M. Gillman was one of the pilots on the first Service flight from Cairo to the Cape and back, where he was particularly in charge of the navigation of the flight. In the course of that journey he proved himself equally able as a pilot as a navigator.

Both officers are shown in the Air Force List as serving on the Staff of the Air Defence of Great Britain Command.

THE HAWKER HORSLEY.

The Hawker Horsley is the R.A.F.'s standard day-bombing machine. It is one of the most remarkable productions



OFF!!—Flt. Lts. Carr and Gillman and the Horsley (Condor) starting from Cranwell at 10.38 hrs. on May 20.

Astounding Reliability of Napier engines Further Proof.

CAIRO-CAPE-CAIRO FLIGHT ENDED.

A SUCCESSFUL EXPERIMENT

(FROM OUR OWN CORRESPONDENT).

CAIRO, MAY 22.

The R.A.F. flight from Cairo to the Cape and back ended this afternoon, when the four machines, under the command of Air Commodore Samson, Chief Staff Officer, R.A.F., Middle East, which left Cairo on March 30, landed at Heliopolis Aerodrome.

The flight was a splendid success, and kept entirely to the programme fixed before the start. Very valuable information with regard to the equipment and care of the machines was obtained. The engines ran perfectly and are now in such good condition, thanks to the excellent work of the mechanics, that they could easily do another trip to the Cape without overhaul.

Four Fairey III F. biplanes (450 h.p. Napier "Lion" engines) were engaged in this flight. Air-Commodore Samson was accompanied by Squadron-Leader R. S. Maxwell, Flight-Lieutenant D. L. Blackford, Flight-Lieutenant S. L. Macdonald, Flying-Officer T. L. G. Bett, and three N.C.O.s.

The above is an extract from "The Times" of May 23rd.

This is the second flight from Cairo to Cape Town and back carried out within the last twelve months by the Royal Air Force. On each occasion four Fairey aeroplanes, fitted with Napier engines, were used.

OVER 100,000 ENGINE MILES HAVE BEEN FLOWN ON
THESE TWO FLIGHTS WITHOUT CHANGE OF ENGINE
OR MECHANICAL TROUBLE THROUGHOUT.

NAPIER

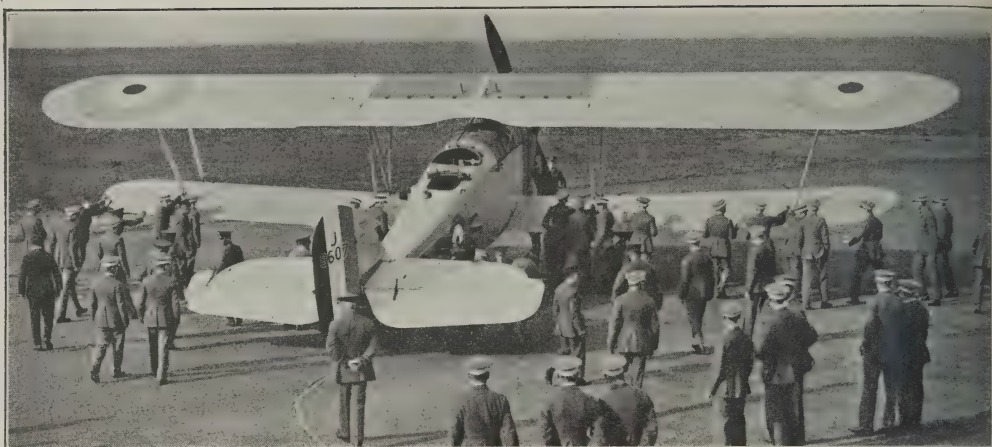
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*"They could easily do another"
trip to the Cape without overhaul*



ENVY.—Cadets of the R.A.F. Cadet College at Cranwell inspecting the Horsley before the start.

of the H. G. Hawker Engineering Co. Ltd., which is itself the successor of the famous Sopwith Aviation Co. Ltd., which supplied a greater number of successful types of fighting machines to the R.N.A.S. and R.F.C. during the War 1914-18 than did any other firm.

The Sopwith Schneider float seaplane, the Sopwith 1½-strutter, the Pup, the Camel and the Snipe were the outstanding successes, and each in turn did much to give us that dominance in the air which we held from the Autumn of 1917 to the end of the War 1914-18.

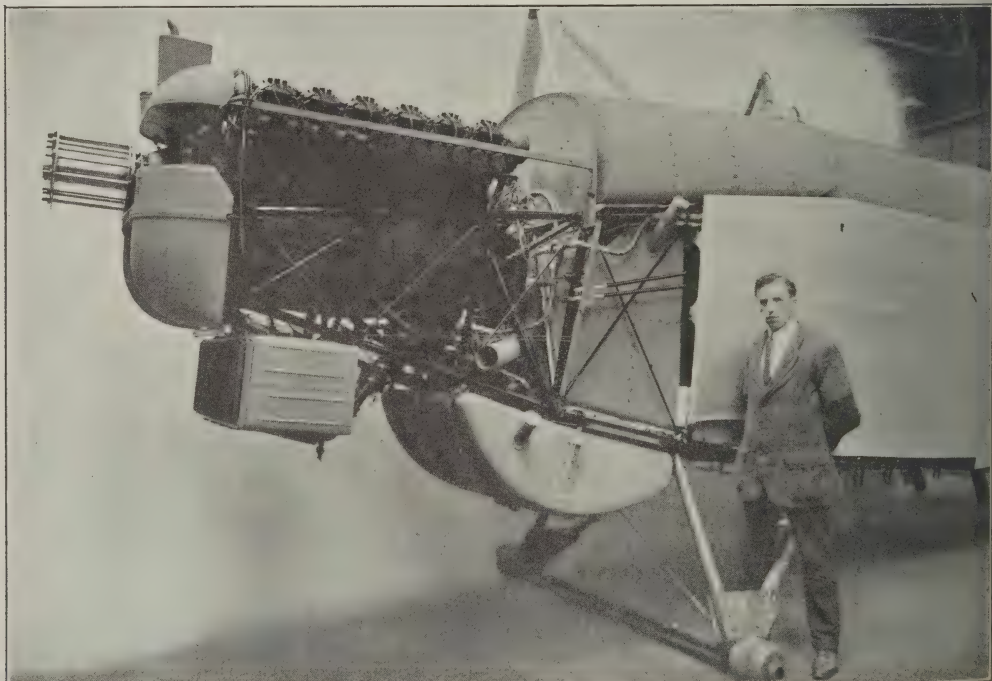
The Sopwith firm went into voluntary liquidation after the War, and incidentally paid all its creditors twenty shillings in the pound. The H. G. Hawker Engineering Co. Ltd. was founded by Mr. Harry Hawker, the chief pilot of the Sopwith firm, and Mr. T. O. M. Sopwith, the founder of the firm, and Mr. Fred Sigrist, the Works Manager of the firm, to make motor cycles. But later on, after the death of Harry Hawker, the joint Managing Directors, Messrs. Sopwith and Sigrist, came back to aircraft, and the Hawker Horsley to-day is a worthy descendant of the long line of Sopwith successes.

A successful come-back is unusual in the history of any sport or trade, and this is an outstanding example of such a success.

The Horsley is a two-bay biplane and has a quite distinctive appearance owing to the big span of the upper plane and the dihedral angle to the lower plane. The machine is so beautifully proportioned that in the air it looks as if it were quite small. And it is so beautifully balanced that in spite of its size and big load it handles like a scout.

The machine which was used for the flight to the East was one of two prepared for the job. Each of these was in every way a standard Horsley bomber. No material alterations were made in the design of either the wings or fuselage. The only real departure from standard was the fitting of the enormous petrol tanks which are shown in the accompanying illustrations.

There are seven of these tanks. The rear tank of these is of curious shape and takes up the whole of the fuselage immediately in front of the pilot and forms a kind of saddle over the top of the fuselage. In front of this are two more



THE POWER-PLANT.—The Rolls-Royce Condor and its mountings. The radiator is seen below the engine and the 60-gallon oil-tank below and behind it.

THE "MOTH" (X TYPE)



THE
FASTEST
"CIRRUS" ENGINE
LIGHT AEROPLANE
AND
THE TYPE WITH
1,000,000
MILES OF EXPERIENCE BEHIND IT.

For a full description of the "Moth" (land and seaplane),
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tanks inside the fuselage, one on each side, with struts and bracing between them, and on the top of these are two more tanks carried like a saddle on top of the fuselage under the centre section. Two other tanks are carried in the top plane, one on each side of the centre section.

The centre section tanks are of tinned steel, but the others are of welded aluminium. The oil tank is also of welded aluminium and two copper tanks are fitted to carry extra water aft of the radiator.

The total amount of petrol carried is 1,100 gallons. This is almost certainly the biggest petrol load ever carried by an aeroplane in proportion to its horse power.

The Handley Page, with four Rolls-Royce Eagle engines, which was shipped to Newfoundland in 1919 with the intention of flying the Atlantic had tank capacity for 2,200 gallons with her 1,440 horse power. Major Brackley actually took the machine off the Cricklewood aerodrome with 1,800 gallons on board. And when, after Messrs. Alcock and Brown had flown the Atlantic before the Handley Page could be erected, Admiral Mark Kerr commanding the expedition decided to fly from Newfoundland to New York, the machine carried something over 1,200 gallons.

But the 1,100 gallons for the Horsley with her 650 h.p. Rolls-Royce Condor engine is obviously a greater load in proportion to the engine power. Apart from this the cruising speed of the Horsley is somewhere about 110 miles per hour, whereas the speed of the Handley Page at that time was probably about 80 miles per hour, so there is a vast difference in the range of the two machines.

Other than the tank arrangement, the only departure from standard practice in the Horsley is the fitting of a stronger axle and bigger wheels as compared with the standard Horsley, to meet stresses set up by starting with such a colossal load. But, it should be noted, the Palmer tyres are of the ordinary standard type.

Internally some minor alterations have been made to provide sleeping quarters for the pilot and navigator alternately in a small camp bed. Also the fact should be noted that in spite of the enormous load no structural alterations were necessary to carry the unusual load. The ordinary factors of safety in the Horsley are enough to take care of that.

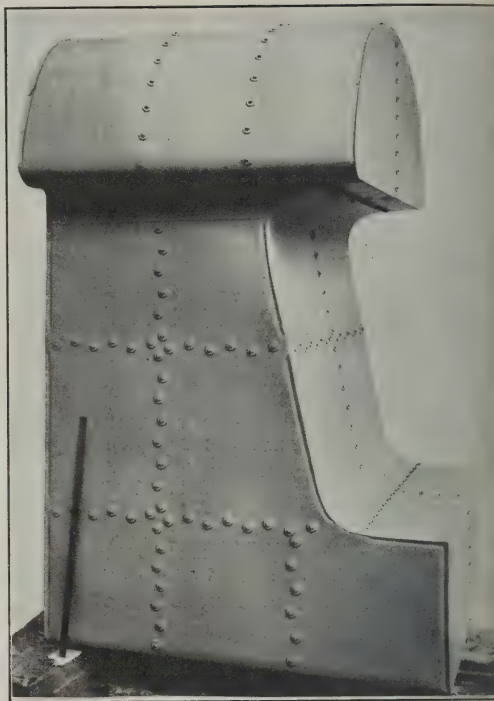
The Horsley has a wing area of 691 sq. feet, and with everything all on for the start she weighed 14,360 lbs., so that her wing-loading was about 20 lbs. to the square foot. Her engine loading was about 20 lbs. per horse-power. Of the 14,360 lbs. her petrol weighed 7,700 lbs., oil weighed 500 lbs., and water weighed 300 lbs. That is to say fuel and water weighed 8,500 lbs.—or well over half her total weight.

Altogether, these special long-range Horsleys are very fine machines and the fact that although one is lost another one remains, encourages one to hope that at the next full moon somebody else will succeed where Flt. Lts. Carr and Gillman met with misfortune.

The Condor engine is the latest of the Rolls-Royce series to be put into regular service. It started originally as a 500 h.p. engine and, as is the habit of all Rolls-Royce engines, its power has gone up steadily without increasing the weight since the Mark I series appeared.

In its general arrangements it is exactly similar to the firm's Falcon and Eagle series. And it has proved itself to be in every way a worthy successor to them.

For the benefit of those who are inclined to quarrel with everything the Air Ministry does one would point out that the flight was arranged purely as a Service exercise to show that R.A.F. machines and R.A.F. pilots are as good as anybody else's. Such performances are good for the moral of



ARTISTRY IN METAL.—The rear tank of the Horsley. The front of the tank is on the left. The two-foot rule gives the scale.

the Air Force. And it is good for the British tax-payer to know that his pilots and their equipment are up to the best International standard.

At any rate so much has been proved. And at the next attempt one hopes that we shall be able to prove that ours are better than anybody else's.

THE JOURNEY.

The machine left Cranwell at 10.38 hours on Friday, May 20. It was sighted over Ostend at 12.47 hours and was reported as having been seen over Wiesbaden that evening. It descended in the sea 45 miles South of Bunder Abbas at 21.15 hours (British Summer time), which is approximately midnight at the spot where they descended.

The pilots were picked up by a ship bound for Abadan, the port of the Persian Oil Fields below Basra. And until news is received from them, nobody can even give a guess at the cause of their descent.

The distance actually covered is 3,588 miles, by Great Circle Navigation, but along the course they took by way of Vienna and Constantinople and the Taurus Mountains they had probably covered between 200 and 300 miles more. One can only wish them better luck next time.



TANKAGE.—The arrangement of the petrol stores in the Horsley.

LINDBERGH

Used

Mobiloil

Capt. Charles Lindbergh on his epoch-making flight used Mobiloil "B"—the same as you can buy at any garage—to lubricate his air-cooled Wright Whirlwind engine.

He pinned his faith to Mobiloil as did the "Round the World" pilots and Commander Byrd, the first man to fly to the Pole.

Reliability, efficiency, economy and maintenance of maximum engine performance were the essential features to be obtained at all costs.

Mobiloil once again proved its supremacy.

Mobiloil is available wherever aeroplanes fly—all over the world.



VACUUM OIL COMPANY, LTD., CAXTON HOUSE, LONDON, S.W.1

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

PREVIOUS GREAT FLIGHTS.

For purposes of comparison it seems well to record here the fact that the first actual flight across the Atlantic was made by the N.C.4, a flying-boat built by the Curtiss Company with Liberty engines for the United States Navy from designs of the Air Department of the Navy Bureau.

Three of these boats started from Rockaway Beach, Long Island, on May 8, 1919, and flew to Trepassey Bay, Newfoundland, whence they started on May 16 for the Azores. Warships of the U.S. Navy were stationed at various points along the route and rescued two of the N.C. boats which broke down. The third boat, under the command of Lieut. Cdr. A. C. Read, U.S.N., refuelled at sea, reached the Azores safely, flew thence to Lisbon on May 27, thus completing the Atlantic crossing, and reached Plymouth on May 30.

The first non-stop flight across the Atlantic was made by Capt. John Alcock, D.S.C., R.A.F., and Lieut. Whitten Brown, R.A.F., in a Vickers Vimy biplane with two Rolls-Royce Eagle engines. They left Newfoundland at 16.28 hours (Greenwich time) on June 14, 1919, and landed at Clifden, County Galway, Ireland, at 08.40 hours on June 15. The distance was about 1,900 miles.

The South Atlantic was crossed for the first time by air in rather complicated stages by Captain Gago Continho and Commander Sacadura Cabral of the Portuguese Navy between March and June, 1922, on Fairey seaplanes with Rolls-Royce engines.

In January, 1926, Commandante Franco of the Spanish Army on a Dornier Wal with Rolls-Royce Eagle engines flew from the Canary Islands to Pernambuco stopping at Fernando Noronha en route.

A non-stop flight from Continent to Continent across the South Atlantic still remains to be done.

For purposes of comparison with the R.A.F. flight to the East one may note that the best previous record in that direction, which was also the World's non-stop distance record at the time, was that by M. Coste and Capt. Rignot on a Breguet XIX biplane (500 Hispano Suiza engine) on October 28, from Paris to Jask, on the Persian Gulf, 3,343 miles.

RESULTS.

Both the flights of this week have produced the usual crop of congratulatory telegrams. Lindbergh's flight has been celebrated by messages apparently from all the high officials of France to all the high officials of America, and vice versa, to such an extent that, in spite of the Monroe doctrine and all the other pious resolutions, the United States look like being entangled in another European alliance, in sentiment if not on paper.

The glorious failure of Flight Lieuts. Carr and Gillman produced a sympathetic message from Sir Hugh Trenchard to Mrs. Gillman expressing his delight in hearing that the crew of the Horsley were safe, and congratulations to the two pilots on their safety. So much difference does a mere matter of 170 miles make.

Still, there is an old saying, credited to Napoleon Bonaparte, that the British Army loses every battle except the last. And as the British aviator is the direct descendant of the British soldier, presumably we shall go on losing every World's Record until such time as we put up a record which nobody else can touch. Meantime, there is plenty of room and time for improvement and progress.—C. G. G.

IN MEMORIAM.

To commemorate Charles Lindbergh's magnificent flight from New York to Paris Madame Deutsch de la Meurthe, widow of the former President of the Aero Club of France, the donor of the Deutsch Cup for the great international speed race which succeeded the Gordon Bennett Race, has presented 350,000 francs (about £2,800 at the present rate) to the Aero Club of France. Of this 150,000 francs are for a presentation to Capt. Lindbergh. The other 200,000 francs are for the families of the late Captain Coli and M. Nungesser.

In this manner is the memory of one of the great financial pioneers of European aviation worthily commemorated. In the earliest days of French aviation M. Henri Deutsch de la Meurthe was an unfailing source of financial support for French aviation enterprises, in much the same way that Sir Charles Wakefield is the support of British sporting aviation in these days. And one is glad to see that the name of M. Deutsch de la Meurthe is not to be forgotten.—C. G. G.

JUSTIFICATION.

In the issue of *THE AEROPLANE* for Apr. 20 one said, under the heading of "Atlantic Blues," that—
"the Atlantic Ocean seemed to be a very big bone of contention between aviators of many nations."

One also said that—

All the attempts for the Orteig Prize do is to draw a lot of publicity to individuals long before they are anything like ready to start, and when they crash, or fail from lack of money, or stop because of dissensions among the crews as to who is to be the pilot, the public are led to believe that aviation is purely a stunt. When anyone does win the Orteig Prize due space will be given to the performance in this journal . . .

The French journal *Aérial* did one the honour of translating this little article word for word, and added:—

On remarquera que cet article charmant émane de gens qui ne risqueront pas de boire la tasse pour l'excellente raison qu'ils n'ont aucun avion capable d'aborder la dure tentative, autrement dit "les raisins sont trop verts."

Since writing the above article Commander Noel Davis and Lieut. Wooster, U.S.N., have been killed in a crash taking off on a full-load test in America, and two machines, each carrying a crew of two, have been lost in the Atlantic—one in the South and one in the North.

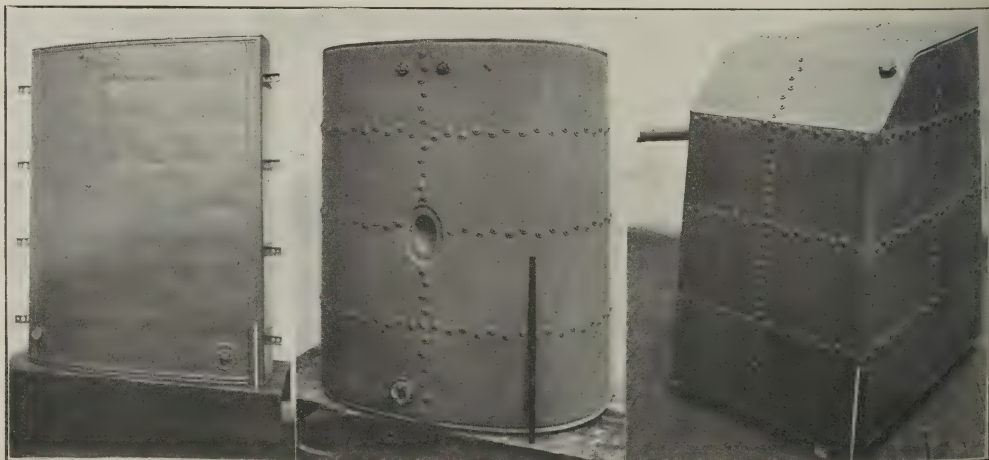
Finally a slight "dissension" among the Bellanca crew, caused by the dismissal of Mr. Lloyd Bertand, one of the pilots, by Mr. Levine, and the subsequent resignation of Mr. Bellanca from the company and the refusal of Mr. Chamberlin to carry on alone has resulted in the withdrawal of the machine from the "competition."

All these facts fit in very well with what was said originally and none can deny that they got undesirable publicity.

Capt. Lindbergh has succeeded in flying from New York to Paris and the due amount of space is being given to his amazing performance.

And now Flt. Lts. Carr and Gillman have flown from Cranwell to the Persian Gulf, a distance of 3,419 miles, slightly further than the farthest distance ever covered by a French machine, which rather takes the sourness out of the green "raisins."

The original article was written to offset the huge amount of arrant nonsense that has been appearing lately concerning aviation and one aimed no spear at any one country or person in particular. That *Aérial* seemed so confident as to the size of cap it wears is regrettable.—L. B.



THE OTHER TANKS.—Left, one of the upper wing tanks. Middle, one of the centre-section saddle-tanks. Right, one of the forward fuselage tanks. The two-foot rules give the scales.

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THE ROYAL AIR FORCE.

The London Gazette.

May 17.

GENERAL DUTIES BRANCH.—Group Capt. J. A. Chamier, C.B., C.M.G., D.S.O., O.B.E., is appointed Deputy Director of Technical Development, Air Ministry (vice Group Capt. Henry Meyrick Cave-Browne-Cave, D.S.O., D.F.C.) (May 6).

The following Plt. Offs. are promoted to the rank of Flg. Off.:—K. Garston-Jones (Mar. 28); A. W. Shaw (Apr. 12).

The following officers are transferred to the Reserve:—CLASS A.—Flg. Off. M. H. Aten, D.F.C. (May 18). CLASS C.—Flg. Off. F. W. Healey (May 19). Plt. Off. J. M. Hunter resigns his S.S. comm. (May 17); Flg. Off. J. R. Bowring, M.C. (Lt., Royal Artillery), relinquishes his temp. comm. on return to Army duty (May 14); Flg. Off. H. S. Hobby, M.C. (Lt., East Yorks Regt.), relinquishes his temp. comm. on return to Army duty (May 8); Flg. Off. A. H. D. Livock relinquishes his S.S. comm. on account of ill-health (May 20).

The S.S. comms. of the following Plt. Offs. on probation are terminated on cessation of duty:—C. E. N. Turtton (May 13); G. A. Robinson (May 18).

ACCOUNTANT BRANCH.—Sq. Ldr. H. E. Rowley relinquishes his comm. on account of ill-health (Nov. 12, 1924). (Substituted for the notification in the Gazette of Nov. 11, 1924.)

MEDICAL BRANCH.—Sq. Ldr. R. S. Topham, M.B., D.P.H., D.M.R.E., is placed on the retired list at his own request (May 1). (Substituted for the notification in the Gazette of May 3.) Plt. Lt. H. H. R. Bayley relinquishes his temp. comm. on completion of service (Apr. 27).

RESERVE OF AIR FORCE OFFICERS.—The following are granted comms. in the General Duties Branch as Plt. Offs. on probation:—CLASS A.—E. E. Fresson (May 17). CLASS A.A.—E. N. Parker (May 2). The following Flg. Offs. are transferred from Class A to Class C:—B. H. Shaw (Oct. 20, 1926); H. S. Eaton (Oct. 18, 1926). The following Flg. Offs. relinquish their comms. on completion of service:—G. V. Yorke (Feb. 26); H. J. Mitchell (May 4); G. H. Wenn (May 13).

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—The following to be Plt. Off.:—No. 605 COUNTY OF WARWICK (BOMBING) SQUADRON.—C. R. Field (May 17).

ERRATUM.—The Naval rank of Lieuts. C. A. Kingsley-Rowe and J. C. Richards is as now described, and not as stated in the Gazette of Apr. 26.

Appointments.

Week ending May 23.

GENERAL DUTIES BRANCH.—Squadron Leaders G. S. M. Insall, V.C., M.C., to No. 70 Sqn., 'Iraq, 25/4. J. K. Summers, M.C., to No. 45 Sqn., Egypt, 25/4. W. D. Budgen, O.B.E., to R.A.F. Depot, Uxbridge, 1/5.

Flight Lieutenants F. O. Soden, D.F.C., to C.F.S., Wittering, 6/5. W. R. Cox, M.C., A.F.C., to No. 605 County of Warwick Sqn., Castle Bromwich, 12/5. E. I. Bussell, to No. 503 Sqn., Waddington, 10/5. F. H. Laurence, M.C., to No. 20 Sqn., India, 19/4. C. A. Stevens, M.C., to H.Q., India, 19/4. H. C. Pyper, to R.A.F. Depot, Uxbridge, 22/4.

Flying Officers J. V. Kelly, J. W. New and Y. W. Burnett, to No. 45 Sqn., Egypt, 25/4. M. H. Jenks, to No. 203 Sqn., Egypt, 27/4. A. J. Thompson, to No. 2 A.C.C., Palestine, 2/5. D. Robinson, to No. 6 Sqn., 'Iraq, 8/4. H. Walker, to No. 58 Sqn., Worthy Down, 10/5.

Pilot Officers N. R. Buckle, to No. 11 Sqn., Netheravon, 12/5. A. P. de Wouff de Wytt, to No. 5 Sqn., India, 14/4.

MEDICAL BRANCH.—Flight Lieutenants J. Perry-Evans, to No. 208 Sqn., Egypt, 20/4. F. L. White, to No. 2 A.C.C., Palestine, 23/4. L. C. Palmer-Jones, M.B., to No. 4 F.T.S., Egypt, 23/4.

Flying Officer R. Thorpe, to No. 4 Sqn., S. Farnborough, 7/5.

STORES BRANCH.—Flight Lieutenants H. J. Payne, to Aircraft Depot, 'Iraq, 27/4. R. V. Robinson, O.B.E., to Supply Services, 'Iraq, 16/4. Pilot Officer E. G. Northway, to No. 11 Sqn., Netheravon, instead of to R.A.F. Station, Duxford, as previously notified, 1/5.

ACCOUNTANT BRANCH.—Squadron Leader A. R. Thomas, to R.A.F. Depot, Uxbridge, 8/4.

Flight Lieutenants E. V. Humphrey, to No. 216 Sqn., Egypt, 22/4. W. E. Ennis, to Record Office, Ruislip, 12/5.

The South African Service Flight.

The R.A.F. Flight under Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., R.A.F., which left Heliopolis on Mar. 30, to fly to the Cape and back, landed at Heliopolis on May 22.

The tour has been completed without any mechanical trouble during the whole journey of about 11,000 miles. The four Fairey IIIF. machines and their 450 h.p. Napier Lion engines, are said to be in perfect condition.

Flt. Lt. S. L. Macdonald, R.A.F., was taken ill at Pretoria and his place was taken by Capt. Tasker, who was lent by the South African Air Force for the return journey.

The R.A.F. Display.

The R.A.F. Display will take place at Hendon on July 2. The gates will be opened at 10.00 hours and flying will begin at 12.00 hours.

Certain improvements have been made this year for the comfort of the spectators. To begin with the Middlesex County Council have promised to open the new Watford by-pass, which has direct entrances to the 55. and 28. enclosures. This should relieve the traffic in Edgware Road, as people can join the new road at Finchley. In the 28. enclosure there will be a new grand-stand with seats for 3,000 people.

An outline of the programme shows that two old favourites have been restored after a temporary absence. Crazy-flying on two Avros is one of them and a Fighter attack on a Kite-Balloon is the other.

A new contest will be an altitude race in which the competitors will be given a set time to get as high as they can and return to earth.

The evolutions by a Bombing Group will be restricted to three squadrons this year, last year's four Squadrons having proved somewhat unwieldy.

There will be the usual aerobatics during the lunch interval and a special display during the afternoon by Instructors of the C.F.S.

Army Co-operation Squadrons, a Fighter Squadron and Squadrons of the Special Reserve and Auxiliary Air Force will take part in the set piece, which will show an aeroplane rescue of the British population from a Barbarian Town while the Revolutionary Mob is kept at bay by Bombing and Fighting aircraft.

The Radio-telephony formation flying will be done to music this year. In other words there will be a musical flight analogous to the Musical Ride at the Tournament at Olympia. The music will be broadcast to the enclosures by loud-speakers, and will be transmitted to the pilots of the aircraft by radio-telephony.

One of the most spectacular shows will probably be the Air Battle over Hendon, in which about four Squadrons of the Home Defence Area will take part.

Altogether it promises to be a better show than ever.—C. M. MCA.

Special Trains to the R.A.F. Display.

The R.A.F. Display Committee is very anxious to persuade the Railway Companies to run special trains from various parts of the country with special cheap rates for those who go to the Display from a distance. The Railway Companies have pointed out that day tickets to London from many towns already exist and they are not prepared to run special trains unless they can be shown that there is a demand for them. Therefore Secretaries of Flying Clubs and ex-R.A.F.



A NEAR THING.—J. H. Mott (3), Sandhurst, winning the 100 yards at the Woolwich, Sandhurst and Cranwell Athletic Meeting at Queen's Club on May 7. J. B. Chalmers (5), Cranwell, was second and N. E. White (6), Cranwell was third.—As a photographic curiosity there is interest in noting that all the runners are leading with their left feet.



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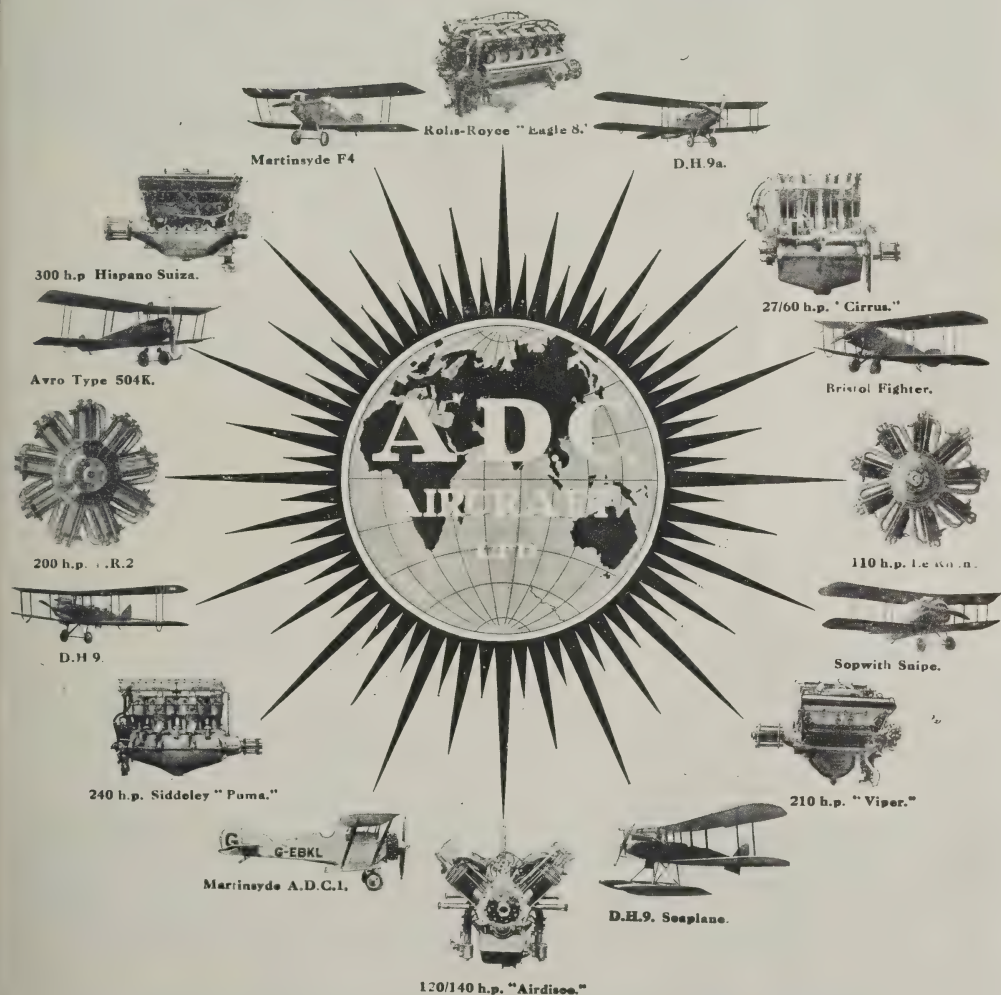
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GOOD LINES.—The Fairey III F, (450 h.p. Napier Lion), a three-seat general service biplane now being delivered to the R.A.F. On machines of this type the Service flight to South Africa and back was done.

Associations and so on who consider that large numbers of their members would go to the Display if special trains and rates were available, are urged to write immediately, setting forth the facts, to the Secretary, R.A.F. Display, Uxbridge. The Display Secretary will then be adequately armed for a further raid on the Railway Companies.

The Royal Tournament.

The Royal Tournament opened at Olympia on May 19 and will take place every week day at 14.30 hours and 20.00 hours until June 4.

The tug-of-war (110 stone) R.A.F. Championship will be held in the afternoon session on May 31, and the tug-of-war (130 stone) R.A.F. in the evening session on June 1. The final Inter-Service Tug-of-War (110 stone) will be held in the afternoon of June 3 and the final of the Inter-Services (130 stone) in the evening of June 4.

The set piece, a Pageant entitled Scotland, illustrates episodes from the history of the ancestors of a good many of us, and is not quite so good as the Frontier Fight last year. But those who would study the antics and apparel of the aboriginal Scot and can stand his particular form of music, the Pageant is a stirring performance.

The Musical Drive by "M" Battery, R.H.A., and the

Musical Ride by the Royal Horse Guards, are, as usual, beyond all praise.

The comic element has been combined with the trick riding this year which is a good arrangement though one doubts whether the horses enjoy making fools of themselves as much as their riders do.

The King's Squad of Royal Marines give a somewhat gloomy display of Handling of Arms in which the Ceremonial Funeral Exercise predominates.

The Royal Army Service Corps give their usual riding and driving display which might with advantage be enlivened with other examples of their activity. Handling sides of beef (Argentine) to slow music, or a game of bowls with plum-and-apple tins, for example.

This year the Navy have varied the inter-port field-gun competition, which has such a high incidence of casualties among the personnel, by a rope-climbing display. Whether this is in anticipation of absorbing the lighter-than-air equipment of the R.A.F. one cannot say, but it is quite a graceful imitation of the daily routine in certain enclosures in Regent's Park.

The Display of Physical Training by 120 Recruits of the R.A.F. is quite up to standard, which, as everybody knows now, is saying a very great deal. The Recruits are led into



CAIRO TO THE CAPE AND BACK.—Threequarter-front and front view of the Fairey III F.



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HIGH PERFORMANCE.—Some attitudes of the Fairey IIIc, as piloted by Mr. Norman MacMillan at Northolt.

the arena by the R.A.F. Central Band and the Display is carried out to the music of the Band without any orders from the Instructor. The whole Display is a marvel of rhythm, fitness, and general agility. The figure marching is done at the double, and last eight minutes, part of which time the recruits sing. A most impressive performance.—C. M. MCA.

The R.A.F. Dinner Club.

The Fifth Annual Dinner of the R.A.F. Dinner Club will be held in the Connaught Rooms on Friday, July 1, at 8 p.m., the eve of the R.A.F. Display.

It is hoped that the Secretary and the Under-Secretary of State for Air will be present as the guests of the Club and that the Secretary of State will reply to his toast.

Members who wish to attend the Dinner are requested to notify the Secretary at Bentley Priory, Stanmore, Middlesex, as soon as possible, enclosing a cheque for 10s. made payable to the R.A.F. Dinner Club. No tickets will be issued after June 29.

The Middle East Dinner.

The Sixth Annual R.A.F. Middle East Dinner will be held at the Trocadero, Shaftesbury Avenue, on Thursday, June 2, at 7.30 for 8.0 p.m. Air Vice-Marshal Sir Sefton Brancker, K.C.B., A.F.C., will preside.

The Dinner is a re-union for those who served as officers with the R.N.A.S., R.F.C. or R.A.F. during the War in Palestine, Mesopotamia, Salonica, Mediterranean, Egypt, East Africa, India or Aden.

Application for tickets (12s. 6d. exclusive of wines) should be made before May 27 to Brig.-Gen. W. B. Caddell, Vickers House, Broadway, Westminster, S.W.1. Cheques or postal-orders should be crossed Westminster Bank M.E. dinner account.

R.A.F. SPORTS AND PASTIMES.

Eastchurch Station Sports Summary.

Cross-country Running.—The Station entered a team for the Junior section of the R.A.F. Championship, which was held at Farnborough on Mar. 16. Considerable difficulty was experienced in getting together



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View of the easy entrance to the passenger's cockpit.



Illustration of the way in which the Wings fold back.



View of Engine Installation.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

a team, as most of the runners had not previously run in a Championship. It is hoped with training to do better next year. On Apr. 6, to wind up the season, the Station Cross-country Championship was decided over a five-mile course. After a good start AC. Gay took the lead, followed closely by Cpl. Coulter and AC. Hinson. At half-distance L-AC. Whittaker, the veteran runner of the station, overtook AC. Hinson for third place. The course was very heavy in places owing to rain. The first five runners to finish were AC. Gay, 32 min.; Cpl. Coulter, 32 min. 15 sec.; L-AC. Whittaker, 33 min. 30 sec.; AC. Hinson, 33 mins. 59 sec.; and AC. Lee, 34 min. 10 sec.

Hockey.—In the Senior Section of the R.A.F. Cup Competition we drew with Manston 3-3, and in the replay lost 1-5. Although several enjoyable friendly games were played, including those with Sittingbourne, Frindsbury, and R.N., Chatham, more than half of the fixtures were cancelled owing to fog and the flooded state of the ground.

The Officers beat the Airmen and the Staff beat the Pupils in the annual matches.

Squash Rackets.—The Annual Officers Competition for the Mess Trophy was held in February. In the final Flg. Off. Empson beat Flg. Off. Sharpe by 3 games to 1 (4-9, 9-6, 9-2, 9-5). Squash was increasingly popular on the Station during the winter months and the standard of play has considerably improved.

Miniature Rifle Shooting.—During the winter months the Club was re-opened, affiliated to the S.M.R.C., and has been well supported by all ranks. The object aimed at is the training of teams for the Bisley Outdoor Meeting in June.

The Inter-flight Cup was won by No. 7 Flight with a score of 537, with No. 4 Flight a good second. A team was entered for the Nobel Cup and made a very creditable score. The Times Certificate for 1927 was won by Cpl. Porter. The Roberts Medal was won by AC. Boucher.

Rugby Football.—Matches were played against Manston, Maidstone, R.E., Chatham, R.N., Chatham, and King's School, Rochester. In the R.A.F. Competition the Station had a bye in the first round, but had to subsequently scratch owing to the Gunnery School being closed for the Christmas vacation when the 2nd round matches were being played off. It is hoped to avoid this in future years.

Association Football.—The Station team had an extremely successful season, winning the Sittingbourne and Milton District League, tying with Chatham Reserves for the championship of the Kent League, Division II, and winning one of the four divisional cups in the Kent Cup Competition. In the R.A.F. Cup Competition they beat Manston 2-0 after a 1-1 tie, but lost to Martlesham Heath 0-3 in the second round. In addition the Armament and Gunnery School were top of the Sheppey League. Sjt. Giles, the Captain, was a prolific scorer, and skipped his team consistently well.

AIR AFFAIRS IN PARLIAMENT.

AIRSHIPS.

In the House of Commons on May 17, in reply to a question by REAR-ADMIRAL BEAMISH, the SECRETARY OF STATE FOR AIR said that the trim of an airship riding at a mast was different from that required for her housing in a shed and consequently she had to be retrimmed for that purpose after she had left the mast. The cost of a mooring tower was approximately £51,000 if similar to that erected at Cardington or £44,000 if certain features were omitted.

Replying to a further question by REAR-ADMIRAL BEAMISH, SIR SAMUEL HOARE said that it was proposed to construct a second shed at Cardington which would be available for re-housing R.100 during her trials which would be carried out from the Cardington mast. The cost of the shed had been included in the Estimates for this year and

would amount to something over £100,000. The height of R.101 would not permit of her being housed at Howden.

In the House of Commons on May 18, in reply to Mr. VIANI, the SECRETARY OF STATE FOR AIR circulated the following in *The Official Report*—

"R.100 (as also the Government airship R.101) has to conform to the general principles of airworthiness (including certain factors of safety) which were laid down in October, 1924, by the Airworthiness of Airships Panel of the Aeronautical Research Committee, whose Report is on sale as No. 970 of the series of Reports and Memoranda issued by that Committee. The two distinguished scientists, to whom I referred in my reply on May 4 to my hon. Friend the Member Bedford, were appointed to examine the actual designs of both airships, and determine their airworthiness in accordance with the Panel's Report. The Airship Guarantee Company were informed in July, 1926, of the appointment of these gentlemen as the Airworthiness Authority for the two airships, and have since been in direct communication with them. I am aware that the Airship Guarantee Company have considered the question of embodying additional factors of safety and their suggestions have been communicated to the Airworthiness Authority, but I do not think I can properly make any more detailed statement on the strength of R.100 at the present time, when the Authority's examination of the design is still in progress."

THE CAPE—CAIRO LANDING GROUNDS.

In the House of Commons on May 18, in reply to Mr. VIANI, the SECRETARY OF STATE FOR AIR said that the cost of opening up the landing grounds on the Cairo—Cape route for Sir Pierre van Ryneveld's first flight over it was approximately £55,000. The cost of reconditioning the grounds and the transport of ground parties for the 1926 flight was about £3,000. The only maintenance charge borne on Air Votes was an annual contribution of approximately £300 to the Sudan Government towards the maintenance of landing grounds in the Sudan which were occasionally required by the R.A.F.

CROYDON AERODROME.

In the House of Commons on May 18, in reply to a question by Mr. VIANI, the SECRETARY OF STATE FOR AIR said that the amount paid by Imperial Airways Ltd. for the rent of buildings and for housing and landing fees for aircraft at Croydon aerodrome for the 12 months ended Mar. 31, 1927, had been £3,744 exclusive of rates. Housing and landing charges had been paid by the Company at Lymington for the same period to the amount of £202. The hotel at Croydon would be in the hands neither of the Air Ministry nor of Imperial Airways. It would be built and conducted as a private undertaking by Barclay, Perkins and Co. Ltd.

DISTURBING THE SLEEP OF CENTURIES.

In the House of Commons on May 20, in reply to a question by SIR C. OMAN, the SECRETARY OF STATE FOR AIR said that the two civil aviation companies operating in the vicinity of Oxford had been requested to ensure that their aeroplanes, in passing over the city, should fly at such a height as to lessen the inconvenience caused by the noise of the machines. He hoped that no further cause for complaint would arise.

THE BRITANNIA TROPHY.

The Royal Aero Club announces that the Britannia Challenge Trophy which is awarded each year to the British aviator who, in the opinion of the Council of the Royal Aero Club, has accomplished the most meritorious performance in the air during the year, has again been awarded to Sir Alan Cobham, K.B.E., this time for his flight to Australia and back between June 30 and Oct. 1, 1926.



HOPPING IT.—The Supermarine Sheldrake (Napier Lion)—the experimental replacement for the Seagull—an amphibian deck-flying Fleet-spotter, leaping out of the aerodrome at the Hamble Pageant on May 15.

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THE INFLUENCE OF AIR POWER.

[BASIC PRINCIPLES OF AIR WARFARE (The influence of Air Power on Sea and Land Strategy). By "Squadron Leader." xii. + 147pp. Gale and Polden. 7s. 6d. net, or 8s. post free, from Aeronautics, Ltd., 14, Bream's Buildings, E.C.4.]

There are many who believe that the great military commanders of history were born to greatness and marched to victory by aid of natural genius alone. Appeal is made to historic instance—an appeal which is in itself a little illogical—and the World is reminded of Wolfe, the vanquisher of Montcalm and dead at the age of 33, of Napoleon and his Marshals, of Robert E. Lee, and Ulysses Grant, and of a host of others who in their day brought brilliance to armies and victory to their countries. But in truth each of these was an ardent student of all that had gone before and in each military genius lay in the selection of the correct, but not novel, solution for the problem correctly recognised.

Napoleon was an acknowledged follower of the Comte de Guibert, and the best of his Marshals owed their knowledge of the Art of War to early service in the armies of the *ancien régime*. Wolfe knew much of Julius Cæsar, of Turenne and of Marlborough. And Robert E. Lee thought in terms of Napoleon. So it was with each great leader. Present practice based on past experience is the basis of all development, civil and military.

The novelty of Aviation, and the advertisement which has attended its rapid development during the past generation, has attracted a number of fluent writers whose imagination has surpassed their military knowledge. Their stock-in-trade has been a dislike for constituted authority, a belief that aviation has revolutionised warfare—a belief repeated through history with each new invention—and a mass of facile prophesy of the future horrors of war. Aircraft, in their view, are the first line of defence, and armies and navies are merely ancillary services maintained principally because the race of "die-hards" lives up to its name. Nations desiring salvation or even existence must fill the air at once with clouds of aircraft whatever may be the expense. Minor details such as the training of mechanics and the organisation of the essential administrative service are ignored.

Each writer foresees the destruction of London by invading aircraft during the next war and the disappearance of Great Britain from the list of major Powers. And because they are fluent they have a wide public following fostered by startling advertisement in the daily Press. Their work has not been without effect on the Royal Air Force itself, and it has certainly done much to damage the spirit of co-operation between the fighting forces which is a primary principle of successful war.

One therefore welcomes the appearance of Squadron Leader's treatise on the basic principles of air warfare. It provides an excellent counterblast to the enthusiast, whose enthusiasm is definitely destructive. He has based his work on a study of war as a whole, and not on the popular phase of the moment.

He "does not accept the belief that the forces of the air will supplant those of the sea and the land," but regards the "three services as essentially complementary." He refuses to dogmatize about the employment of aircraft in war, because as he says there is at present little historical guidance. He prefers to study the "effect, strategical and tactical, which the new arm has had already on the application of the principles governing the conduct of war on sea and on land."

Some of the newer school of theorists have argued, in their enthusiasm for aircraft, that in future wars victory will come to a nation as the result of economic and moral pressure on the enemy population. They believe that a succession of extensive and deadly bombing raids will by spreading uncontrollable terror force a capitulation. Squadron Leader is not of this school. He says, as the great mass of trained military opinion has said before him, that in war "the ultimate result will depend upon whether the armed forces are defeated."

The action of Germany after the Treaty of Tilsit provides a concrete instance of the invigoration of a race by a policy of ill-conceived rigour on the part of the conqueror. Nor, he might have said, is it at all certain that, even on the outbreak of war, it will be possible to employ military aircraft in an attack on the interior of an enemy country.

The launching of such an attack might leave a gap in the national defences of which the enemy might take full and deadly use. In war all operations are circumscribed by the action or future possible action of the enemy. The power to initiate operations and to force the enemy to accept action is an indication that victory is within reach.

There is an excellent chapter on the attainment of air superiority. This he defines as "A state of moral and

material superiority over the enemy, which prevents him from seriously interfering with hostile air operations, and at the same time denies him the successful employment of his own air forces." To gain this superiority, which is vitally important to the fleets and armies with which the air forces are co-operating, tactical skill in air combat, and the attaining of a moral ascendancy over the enemy are both essential.

Second to skill and moral there is superiority of *matériel*. Many put superiority of *matériel* first in importance. But one must agree with Squadron Leader that "the efficiency of *matériel*, whether in its design, construction or handling, is entirely dependent on efficient *personnel*." This may appear to be obvious, but in war as in peace the obvious often escapes notice.

Air superiority is also dependent upon the skilled organisation of production and reserves. Air casualties are certain to be high in the early stages of the next war—in fact they may be so high that production may fail altogether to keep pace and extensive air action may cease for a space. Even though the means of production be extensive enough to provide large numbers of new aircraft it is unlikely that trained *personnel* can be supplied at the same rate.

Therefore "the issue will rest more on the question of reserves than on any other factor." Such reserves should be adequate to meet losses from the outbreak of war until adequate means of replenishment are available.

Squadron Leader speaks of another difficulty. Aircraft are still in the early stages of development and *matériel* swiftly becomes obsolescent and obsolete.

In a chapter on Offence and Defence he says that home defence must always be secondary to the maintenance of an offensive in the field, and agrees with those of us who felt during the late War that the politicians showed too much anxiety about air attacks on this country and retained here many squadrons and batteries which would have had a more decisive effect in the field. He has no patience with half-hearted measures and insists that "air attack to be successful must be in the form of a sustained effort."

Side-shows he dislikes, but not to the degree of believing that in the late War all effort should have been concentrated on the Western Front. He realises that in the British Empire, spread as it is throughout the Earth, operations "in violation of the principle of concentration" must be undertaken. But he fears future submission to the temptation to undertake side-shows with air forces in the future.

He quotes a definition of "concentration" which should meet with approval—"coherent disposal about a strategical centre." And air forces, because of their great mobility and range of action, "are able to operate from widely dispersed bases in support of a common purpose."

There is much on the principal objective of air forces, with the author's conclusions as to the raids which may properly be undertaken by aircraft. He does not believe that towns will be bombed for the sole purpose of affecting the moral of the populace, nor does he believe that such raids would serve their purpose. All air operations of whatever kind should form part of the general strategic plan and conform to its needs. During the war air attacks were made which bore no relation to the abstract plans of the Higher Command, and were consequently a waste of force.

He deals in conservative terms with the influence of Air Power on sea warfare and on land warfare, in each case showing the inter-dependence of the Services. These chapters serve as further illustration of the importance of common action in war.

Each act of each Service should be related to the acts and intentions of the others. Co-operation of this kind is impossible unless there is common understanding of the peculiar functions of the different armed forces, land, sea and air.

Squadron Leader's book should be read by all officers of the three Services. It is the first serious attempt to formulate any doctrine of the employment of aircraft in war. And it is at the same time an excellent exposition of the Art of War.

Clausewitz does not appear in the list of authorities, and it is possible that Squadron Leader has never read *Vom Kriege*. Nevertheless their minds march together in harmony. There are many phrases and theories which echo those of the great German, and there can be no higher praise.

Squadron Leader might well have omitted his list of books consulted. Few of them are primary authorities, and it may be fairly said that Squadron Leader's own enunciation of the principles of war is superior to that of many of the "authorities" he quotes.

The proof-reading has been somewhat eccentric. "Earl" Grey appears for "Viscount" Grey of Fallodon, and there are other minor and irritating mistakes.—BERKELEY.

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AIR POLICY AND THE CROWN COLONIES.

The question of the development of Colonial territories by means of air transport was discussed at the Colonial Conference at the Colonial Office on May 19. The Secretary of State for Air (Sir Samuel Hoare) opened the discussion and said that his remarks might be treated as comments upon those parts of "*An Approach towards a System of Imperial Communications*," which affected the Crown Colonies and Dependencies.

He went on to say that the Imperial Conference of 1926 had agreed that the speeding up of Imperial Communications by air was a great benefit to the Empire, long distance aeroplane routes must be built on a co-operative system with each part of the Empire taking its share of the organisation and that the development of airships had great potentialities for the long-distance air services.

A successful flying policy must be drawn upon a large scale map. [Surely Sir Samuel Hoare meant a large map, or a map of the World.] Our flying policy must be an Imperial policy, needing the help of the Colonies as much as the co-operation of the Dependencies. He imagined that the representatives of the Imperial Territories would ask themselves first how far the development of aviation would benefit their respective countries and secondly to what extent their revenues could stand the charge.

Although the Imperial Government was ready to give financial support to long-distance lines it was not prepared to undertake the regular subsidy of internal services and therefore had no right to dictate a flying policy to the Colonial Governments. Regular air services still required substantial subsidies for their support. British policy was intended to make civil aviation self-supporting at the earliest possible moment and to give Imperial Airways every incentive to free itself from dependence upon subsidies. The new types of machines used by Imperial Airways had reduced the running cost per ton mile from $4\frac{1}{2}$ to $2\frac{1}{2}$.

He suggested that the Colonies should economise not only in the field of technical development but by making their aircraft instruments for many kinds of work. The aeroplane had already proved an effective and economical instrument for forest survey and in spraying insecticides over diseased crops. It had conferred benefit upon remote settlements by bringing doctors and teachers within the reach of scattered families. It had been suggested as a quick and economical means of locating oyster beds.

An aeroplane service between Cairo and Nairobi would halve the four weeks it takes to travel from London to Nairobi.

He hoped that the Government of the Straits Settlements would watch the developments of the Imperial Air Route to India with a view to utilising the cardinal position of Singapore as an air junction between Europe, India and Australia.

The sooner landing grounds were obtained and prepared the cheaper it would be for the Governments concerned.

He was particularly interested in the move that was being made by certain of the African Governments for forming a common meteorological service. Weather forecasting was essential to safe flying and useful in agriculture.

The wireless systems in the Colonies were often antiquated or inadequate. An adequate system of wireless was essential to our scheme of Imperial communications.

AIR STRATEGY.

A lecture was delivered at University College on May 17 by Air Vice-Marshal Sir Philip Game on "Air Power and Imperial Defence." Lord Thomson was in the Chair.

SIR PHILIP GAME said that Aviation was going to be more revolutionary than any of the inventions that had affected strategy throughout history. We had not at present had much experience of air strategy because during the War 1914-18 the Air Forces had been engaged in assisting the Army and Navy and the strategy governing the tactical movements of our Squadrons had not been air strategy but land and sea strategy.

He did not think that supremacy in the air could ever be absolute, it could only be local and temporary. He did not think that any great nation would be so much stronger than

the others at the outbreak of a war that the war would be decided in the air. A vigorous offensive could only be based on a good defensive. Given an adequate defensive organisation every ounce must be put into offensive measures.

Concentration and mobility were the great factors in air strategy.

He had no sympathy with the extreme idea that armies and navies were obsolete and that future wars would be decided in the air. The Air Force was a new weapon with new possibilities and it must be developed according to its own characteristics. He did not think that we were liable to a knock-out blow in a few weeks, except perhaps in the air. And starvation into submission would be a lengthy business.

Staying power and the power of expansion was needed more than initial strength.

LORD THOMSON said that it might be fairly simple for Great Powers to limit the actual size of air forces but there was no possible way of limiting air power because that consisted in the character of the people, their active and intelligent interest in aviation and the extent to which they put that interest into practice in the form of flying and the size and character of the aircraft industry of that country. He saw in Germany a country with the foundations of an immense air power.

TWO NEW GLIDING RECORDS.

On May 3 Herr Ferdinand Schulz succeeded in remaining in the air for 14 hours 7 mins. on a glider while taking part in a gliding meeting at Königsberg. The previous official duration record for gliders was held by Commandant Massaux, who remained in the air for 10 hours 29 mins. on a Poncelet glider at Vauville on July 25, 1925.

Two years ago Herr Schulz made a glider flight lasting 12 hours 6 mins. in the Crimea, but this flight, having been made in Soviet Russia, was not officially homologated.

On May 14, Herr Schulz succeeded in gliding for a distance of 62 kms. (38.5 miles), along the Baltic coast from Rositten to Memel. The previous longest glide in a straight line was made by Herr Max Kegel, who covered 34 miles during the 1926 Rhön meeting.

THE FLIGHT ROUND THE ATLANTIC.

Since the receipt of his new machine, the *Santa Maria II* (two 500 h.p. Isotta-Fraschini engines), the Marchese de Pinedo has done some remarkably fast flying.

On May 8 he left New York and flew to Boston.

On May 9 he left for Philadelphia, but was forced to land at Norwalk, Long Island, owing to fog.

On May 10 he reached New York.

On May 11 he flew from New York to Philadelphia.

On May 12 he flew to Charleston, and on the three following days he reached Pensacola, on the Gulf of Mexico, New Orleans, Memphis and Chicago respectively.

On May 17 he flew from Chicago to Montreal arriving at the latter place after dark after flying for 11 hours.

On May 18 he flew from Montreal to Quebec.

On May 19 he flew from Quebec to Shippegan Island, New Brunswick, and Trepassey, Newfoundland.

On May 23 he left Trepassey at 01.58 hours (Eastern time) to fly to the Azores, a distance of about 1,500 miles across the Atlantic. He was seen at St. John's at 02.42 hours, and the British steamer *London Importer* reported seeing a white aeroplane at 16.38 hours (London time) about 360 miles N.W. of the Azores.

The latest reports on Tuesday said that he was being towed to the Azores.



THE CIRCUMNAVIGATOR.—The Savoia 55 (*Santa Maria II*) on which Col. the Marchese de Pinedo is completing his circular tour of the Atlantic Nations.



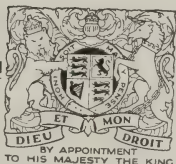
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THE FLYING CLUBS.

[NOTE:—All Flying Club News was held over last week owing to the congestion caused by the Hamble Pageant.—C. G. G.]

The Newcastle Flying Meeting.

The Newcastle-upon-Tyne Aero Club is holding a Meeting on Saturday, June 11, under license from, and under the competition rules, of the Royal Aero Club.

The competitive events include:—

(1) Private Owners' Handicap Race, for a Challenge Cup and £20, the definition of "Privately owned" being at the sole discretion of the Newcastle Club.

(2) The President's Cup Race, for the President's Challenge Cup and £20, presented by Col. Sir Joseph Reed, open to Pilot Instructors of approved Flying Clubs and Pilots holding "B" licences, flying light aeroplanes.

(3) Open Handicap, open to all, over a course of approximately 20 miles. First prize, £75.

(4) Inter-Club Relay Race, open to teams of three pilots from each approved Club, which may include Pilot Instructors, over a course of approximately 4 miles. First prize, Challenge Cup presented by Messrs. V. S. and J. M. Davidson, and a prize for each member of the winning team.

(5) Inter-Club Members' Handicap, open to Members of approved Light Aeroplane Clubs flying light aeroplanes. Pilot Instructors (honorary or otherwise) not eligible. Prize, Challenge Cup presented by Mrs. de Lancy Willson.

For the purpose of this Meeting a "light aeroplane" is an aeroplane with an engine whose total piston displacement does not exceed 5,000 c.c.

Each type of aeroplane will be handicapped, on a time allowance basis. The Club reserves the right to re-handicap any competitor for any race.

The Challenge Cups are held by the entrants of winning aircraft for one year. Any of the Cups may be won outright by three successive wins.

The Newcastle Club reserves the right to refuse or exclude any entry without assigning a reason. There are no entrance fees.

Entry forms can be obtained from, and must be returned completed by June 4, to The Secretary, The Newcastle-upon-Tyne Aero Club Ltd., Crumlington Aerodrome, Northumberland.

The London Aeroplane Club.

[Sec.: H. E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending May 15.

Flying time 34 hrs. 10 mins., exclusive of the Hampshire Pageant. Instructors—Messrs. F. G. M. Sparks and S. L. F. St. Barbe. Instruction—P. W. Hoare, C. Black, Dr. Cook, C. H. Swan, Lord Carlisle, H. C. Riches, J. A. Simon, E. K. Wilson, A. S. Mulder, T. Clarkson, E. T. Symmons, E. J. B. King, Miss O'Brien, Mrs. Cook, A. S. Richardson, A. C. Jackman, H. O. Gugenheim, Miss Fletcher, G. H. Saxon Mills, M. P. Susman, I. H. McClure, Miss Spooner, Miss Wilson, C. L. Harrison, E. A. Lingard, L. Daniels, P. O. A. Davidson, A. J. Richardson, J. R. Bell. Solo—E. L. Moore, E. S. Brough, O. J. Tapper, G. H. Craig, A. S. Mulder, Major H. Petre, Miss O'Brien, E. T. Symmons, G. Terrell, J. H. Saffery, A. F. Wallace, Passengers—B. Merry, Miss Terrell, Miss Clode, L. H. Whiteside, B. N. Whiteside, B. Maurice.

The Hampshire Pageant.—The Bristol Brownie, piloted by L. J. C. Mitchell, won the Wakefield Light Aeroplane Handicap and the Club is therefore the holder for the first year of the Challenge Cup presented by Sir Charles Wakefield, Bart. The Stakes of £50 also go with the Challenge Cup.

The Bristol Brownie, piloted by G. H. Craig, secured the third prize of £10 in the President's Challenge Cup Race.

Entrance Fee.—The Committee has decided to impose an entrance fee of £3 3s. on all Flying Members joining the Club from now onwards.

Bournemouth Whitsuntide Meeting.—The Bournemouth Whitsuntide Meeting will be held at Emsbury Park Racecourse on June 4 and 6 next. Members of the London Aeroplane Club will be admitted free on presentation of their Membership Badges. Motor-cars will be charged 2s. 6d.

The Lancashire Aero Club.

[Sec.: C. J. Wood, Windsor Bank, Chapel Street, Hyde, Cheshire.]

Report for week ending May 14.

Flying time 38 hrs. 5 mins., composed of:—Dual, 11 hrs. 25 mins. Solo, 8 hrs. 25 mins. Tests, 2 hrs. 15 mins. Joy-rides, 16 hrs.

Solos.—Costa 1 hr. 5 mins., Nelson 1 hr. 5 mins., Twemlow 1 hr. Abdalla 1 hr., Chapman 55 mins., Crosthwaite 55 mins., Lacayo 30 mins., Michelson 25 mins., Hardy 25 mins., Forshaw 20 mins., Dickinson 15 mins., Goodfellow 10 mins. Dual.—Harbor 1 hr. 20 mins., Gerrard 40 mins., Leeming 50 mins., Musgrave 55 mins., Meades 40 mins., Twemlow 40 mins., Ward 35 mins., Patrieuaux 35 mins., Fallon 30 mins., Gattrill 30 mins., Torres 30 mins., Nelson 25 mins., Caldecott 25 mins., Cohen 25 mins., Powell 25 mins., Stunt 20 mins., Rowley 20 mins., Race 15 mins., Barnade 10 mins., Goodyear 10 mins., Abdalla 15 mins., Miss Emery 15 mins. Joy-rides given by Messrs. Brown, Cantrill, Costa, Goodfellow, Stack, Scholes, Twemlow.

Owing to the incidence of the Hampshire Pageant further details are lacking.

The Yorkshire Aeroplane Club.

[Sec.: J. F. Barnes, 39, Swan Arcade, Bradford.]

Report for week ending May 15.

Total flying time was 32 hrs., consisting of dual instruction with Mr. Beck 18 hrs. 30 mins.; Cross country, 6 hrs. 30 mins.; Aerodrome solo, 5 hrs. 20 mins.; Joy-rides, 1 hr. 15 mins.; Tests, 25 mins.

Instruction with Mr. Beck.—Capt. Milburn, Miss Watson, Messrs. Ratcock, Miller, Atcherley, Thomson, R. K. Lax, Ely, Yeomans, Brown, Ambler, Brumham, Oglesby. Solo.—F. O. Atcherley, Capt. Milburn, Messrs. Norway, Fielden, Clapham, Wilson, Mann, M. B. Lax, Wood, and Dawson.

On Sunday we sent a Moth to Lancashire, to welcome Mr. Stack. Mr. Mann flew it, with Mr. Swift as navigator. Lunch consumed, we understand that they set off for Sherburn, thinking no evil. Some seventy minutes later the following conversation is reported to have

taken place: Pilot—"It's Wakefield, I tell you. I've got an aunt that lives there." Navigator—"It's Pontefract. It says so on the map." Pilot—"Well, anyway, let's put down and ask." Nottingham C. Flying time, Woodford to Sherburn, three hours and fifty minutes. We claim this as an Inter-Club Record.

On Monday we flew Mr. Johnstone, of Layton and Johnstone, to Sheffield. We understand that in this way Mr. Beck secured several more records for the Club. Signed ones, too.

Our castle in the air, complete with hard tennis courts, billiard room, palm court, slumber lounge, etc., is materialising quite nicely. Members are requested not to wake the medium.

The Hampshire Aeroplane Club.

[Sec.: Major R. Ross-White, Hamble, Southampton.]

Report for week ending May 13.

Flying was possible on two days only this week owing to gales on Saturday, Monday and Tuesday, and Pageant preparations on Thursday and Friday.

Flying time for the two days was 9 hrs. 45 mins. Instruction, 4 hrs. 45 mins. Solos, 3 hrs. 20 mins. Joy-rides, 1 hr. 20 mins. Tests, 20 mins.

Instruction.—Messrs. A. V. Roe 55 mins., Berney 35 mins., Brewster 30 mins., Parker 30 mins., Cox 40 mins., Farmer 20 mins., Dunnings 15 mins., Eburn 15 mins., Simmonds 10 mins., Master Eburn 10 mins., and Miss Home 25 mins. Solos.—Bowen 25 mins., Nicholson 25 mins., Lieut. Kimmings, R.N., 20 mins., Cooper 15 mins., the Hon. H. R. Grosvenor 15 mins., Capt. Yeatman 15 mins., Shepherd 10 mins., Rumble 10 mins., Flt. Lt. Crawford 10 mins., Flt. Off. Overbury 10 mins., Flt. Off. Brodie 10 mins., and E. W. Wyllie 35 mins. Joy-rides.—Sgt. Mills, Mr. Baxter, Mr. Alexander and Mr. Bailey, of Sky Riders.

On the afternoon of Sunday, May 15, the Club endeavoured to entertain approximately thirty-five thousand of the G. B. P.

The Bristol and Wessex Aeroplane Club.

[Sec.: C. S. Clarke, Channel Road, Walton Park, Clevedon, Som.]

Report for week ending May 14.

Total flying time Nil!!! However, the Club's Pixie is rapidly getting into condition, and will soon be fit to aviate.

A meeting of members was held at the Constitutional Club, Bristol, on Friday, and was well attended.

Mr. A. H. Downes-Shaw (first Chairman and largely responsible for the organisation of the Bristol Junior Conservative Association) was elected Chairman of the meeting.

Mr. C. Sidney Clarke (organiser of the Club and Acting Sec.) gave an outline of the position and the progress made. He stated that there were 105 applicants for membership, of whom 55 were anxious to become Pilot Members. One aeroplane (a Parnall Pixie) had been given to the Club by Mr. George Parnall, who had also given a substantial subscription and the use of his Yate Aerodrome, with shed accommodation. Mr. Clarke then gave a statement of the financial outlay required to make an early start with flying.

Col. H. C. Woodcock, M.P., was unanimously elected President of the Club by the meeting, which then proceeded to elect a General Committee as follows:—A. H. Downes-Shaw (Chairman), Mrs. D. Hopper, C. Sidney Clarke, Flt. Lt. C. T. Holmes (Instructor, Bristol Aeroplane Co.'s Flying School), R. Ashley Hall (an enthusiast with strong local interests and connections), Flt. Off. Eric Hopper, Capt. W. F. Hamilton (late R.A.F., who is now with the B.P. Co.), Capt. C. J. Brewer (late R.A.F. and lecturer on Aviation, now B.E.C.), H. J. Pollard (of the Bristol Aeroplane Co.), Flt. Off. J. S. K. Inskip (late President, Cambridge University Aeronautical Society, now a Works Engineer), B. W. Townshend (of Parnall's Aircraft Design Staff), Arthur Taylor (Hudson Smith Briggs and Co., Accountant and Hon. Auditor to Club).

This Committee then sat and elected sub-committees for Finance, Aerodrome, and Publicity.

A meeting of the Finance Committee was then held, and a definite scheme for securing adequate support was adopted.—C. S. C.

The Norfolk and Norwich Aero Club.

Mr. H. O. Bennett, F.S.A.A., has been appointed Honorary Secretary of the Norfolk and Norwich Club in place of Mr. R. O. Clark. Mr. Bennett's address is 5, Opie Street, Norwich, and all communications relating to the Club should be sent to him there.

The Airship Club.

[Sec.: Harold Perrin, 3, Clifford Street, W.1.]

The Gordon Bennett Balloon Race.—The Airship Club has decided to make one entry for the Gordon Bennett Balloon Race to be held in Denver, U.S.A., on Sept. 10 next. Members wishing to take part in the race are requested to forward their names to the Secretary not later than the 30th inst.

A Fund has been started to help defray the expense of sending the team and balloon to Denver. The following donations have so far been promised:—Mr. Griffith Brewer, £10 10s.; Lt.-Col. Sir Francis K. McClean, £6 6s.; Sq. Ldr. R. S. Booth, £5; The Hon. A. F. de Moyness, £4. The organisers of the race in Denver will contribute £60. Members wishing to assist are requested to forward their donations to the Secretary.

The Annual General Meeting of the members of the Airship Club will be held at 3, Clifford Street, London, W.1, on Tuesday, May 31, 1927, at 6 p.m. The Committee of the Club elected at the General Meeting held on Dec. 15, 1926, to carry on till Apr. 20, 1927, were as follows:—R. M. Balston, Capt. F. L. M. Boothby, The Hon. Claude Brazabon, Griffith Brewer, Lord Cunliffe, The Hon. A. F. de Moyness, Lieut.-Col. W. Lockwood Marsh, Major. C. C. Turner, Wing Cdr. A. C. Winter. Sq. Ldr. R. S. Booth has since been added. The whole Committee retire and are eligible for re-election. Nominations for the Committee signed by two members of the Club should be received by the Secretary not later than noon on May 31, 1927.

The Felixstowe Light Aeroplane Club.

[Sec.: The Marine Aircraft Experimental Establishment, Felixstowe.]

The outstanding successes of the Cranwell Light Aeroplanes Club during its existence naturally direct public interest towards the Felixstowe Light Aeroplane Club, which has in a way risen Phoenix-like from the ashes of the Cranwell Club.

In the course of Service moves nearly all the officers and many of the men who made the Cranwell Club such a success have

been transferred to other stations. The Secretary, Flt. Lt. Comper, was transferred to Felixstowe, and the engine specialist, Capt. Pobjoy, was transferred to Halton. Consequently it became necessary to dissolve the partnership. As the chief designer and pilot of the Club, Flt. Lt. Comper took charge of the Club's two machines, the C.L.A.3 and 4, which are now in his care at Felixstowe.

The Felixstowe Club has now been formed and is constituted thus:—President, Wing Commander R. B. Maycock, O.B.E., Officer Commanding the Marine Aircraft Experimental Establishment; Secretary, Mr. F. E. Cowlin, B.A., A.F.R.Ae.S. (Principal Scientific Officer, Felixstowe); Treasurer, Flt. Lt. H. G. Sawyer, A.F.C.

The members of the Committee are:—Flt. Lt. A. Hunter, O.B.E., Flg. Off. H. J. Usher, and Flg. Off. V. Rees. The Club pilots are:—Flt. Lt. Chick, Flt. Lt. Sawyer, Flt. Lt. Comper and Flg. Off. W. L. Payne, who are also members of the Committee.

Flt. Lt. Chick is Competition Manager for the Club, but one imagines that his work in the High-Speed Flight (which will shortly be transferred to Calshot) will take so much of his time that he will have little to spare for the Club until after the Schneider Trophy contest. Flt. Lt. Comper is Assistant-Secretary to Mr. Cowlin.

One gathers from an entirely different source that Mr. Cowlin will shortly be transferred to an important position at the Air Ministry for which his good work at Felixstowe has proved his eminent suitability, so presumably the Felixstowe Club will already have to set about finding some new officials.

The membership of the Club includes almost without exception the entire Officers' Mess. Two Flight Sergeants and two Corporals have joined, as well as several Leading Aircraftmen and Aircraftsmen. The non-commissioned members of the Club pay no subscription in cash, but better still work like the real enthusiasts they are in their spare time, when called upon on occasion arises. The keenness of the Other Ranks of the R.A.F. in these various Service Clubs is one of the brightest spots in the private-ownership side of British Civil Aviation.

As regards the winding up of the Old Cranwell Club, one is happy to state that all the subscribers to that Club have got their money back out of the prizes which the C.L.A. machines have won. Many of these subscribers have asked to be allowed to re-invest their original subscriptions and those responsible for the Felixstowe Club hope that some arrangement to this end may be made.

The working members of the old Cranwell Club, as differentiated from the ordinary subscribing members, are having special shares in the Felixstowe Club issued to them in return for their work on the C.L.A.4. Which is an excellent scheme.

One can only hope that the Felixstowe Club may be as successful as was the Cranwell Club. The competition of these sporting officers and men at flying meetings is eminently desirable, both as a spur to civilian aviators and as a means of increasing the sporting spirit in the stations concerned.—C. G. G.

The London Aeroplane Club.

Report for week ending May 22.
Total flying time 44 hrs. 30 mins. *Instructors.*—Messrs. F. G. M. Sparks and S. L. F. St. Barbe. *Dual Instructors.*—A. J. Richardson, C. H. Swan, J. R. de Havilland, J. G. Crammond, L. Daniels, A. C. M. Jackaman, R. Drysdale Smith, J. J. Hofer, L. W. Gibbins, Miss Spooner, Lord Carlou, A. J. Mulder, E. D. Moss, J. A. Simson, G. M. Randall, I. H. McClure, R. Morris, A. Southgate, E. R. Winter. *Solos.*—J. Martin, R. S. Clark, Miss O'Brien, O. J. Tapper, E. T. Symmons, A. J. Richardson, A. C. Pearson, R. Malcolm, E. D. Moss, C. H. Craig, A. J. Mulder, E. L. D. Moore, Sq. Ldr. M. E. A. Wright, D. F. H. Esler, H. Petre, A. F. Wallace, L. J. S. Mitchell, C. Terrell, A. R. Ogston, Major K. M. Beaumont, D.S.O. *Passenger.*—J. R. S. Charles.

Certificate.—On Wednesday, May 18, Mr. E. L. D. Moore passed the tests for his Aviator's Certificate.

The Lancashire Aero Club.

Report for week ending May 21.
Splendid dart-throwing and shore-halfpenny weather has prevailed during the week.

Total flying time 47 hrs. 40 mins., made up as follows:—*Dual with Mr. Brown.*—Messrs. Shiers and Harber 1 hr. each, Torres and Rowley 55 mins. each, Davidson 50 mins., Ward and Turner 40 mins. each, Keay and Hardy 30 mins. each, Musgrave, Caldecott, Leeming, Patriciou, Miss Emery and Miss Barclay 25 mins. each, Messrs. Meades 20 mins., Ruddy and Stonex 15 mins. each, Goodyear and Cattrell 10 mins. each, Dickinson 5 mins. *Dual with Mr. Cantrill.*—Mr. Chapman 25 mins., Miss Barclay and Mr. Ruddy 15 mins. *Solo.*—Messrs. Costa 2 hrs. 30 mins., Abdalla 2 hrs. 5 mins., Twemlow 2 hrs., Chapman 1 hr. 20 mins., Nelson 40 mins., Lacayo 30 mins., Forshaw 25 mins., Leeming and Goodfellow 15 mins. each, Ward 10 mins., Musgrave 5 mins. *Joy-rides.*—With Mr. Brown—Mr. Murrell (photography) 65 mins. With Mr. Leeming—Mr. Heys 45 mins., Walton 25 mins. With Mr. Costa—Mr. Hibbs 30 mins., Miss Shaw 15 mins. With Mr. Cantrill—Miss Wrigley 10 mins., Messrs. Smith and Schofield 10 mins. each. With Mr. Scholes—Messrs. Lockwood and Robinson 10 mins. each. With Mr. Lacayo—Mr. Hartley 20 mins. With Mr. Twemlow—Mr. Meades 15 mins.

First solos were made during the week by Messrs. Ward and Musgrave, while Mr. Chapman successfully accomplished his height test.

On Saturday, May 14, Messrs. Goodfellow and Dobson flew to Hamble on the Avro Avian G-EBRC, returning on Monday in the Lynx Tourer, KO. The trip took 24 hrs. each way, as compared with 8 or 9 hrs. by car or train. Unfortunately they were not allowed to compete in the inter-club utility race as G-EBRC was not registered in the name of the Club. The machine finished well up in the three "B" races, but Mr. Goodfellow's solitary success was in the "bicycle race" (Paceman of Travel Relay) in which, pedalling at a steady 2,000 r.p.m., he came home an easy winner!

Work on the club-house extensions is proceeding at an amazing pace and the new balcony is already up to the roof. The "amenities" are proceeding more slowly, and their outlines may be observed by those who look closely into matters.

One would like to offer congratulations this week to (1) The

Hampshire Club at having set up a standard for other Clubs to try and surpass in the matter of displays. (2) The London Club on the consistently fine flying of their Bristol Brownie, JM, at the H.A.P. (will no-one give us a Brownie?) [Greedy! Look at all the machines you have already had presented to you by Sir Charles Wakefield and the Avro people—let alone those promised at the Inaugural Meeting by the Manchester Brewers and the Manchester Motor-Mongers—C. G. G.] (3) The Yorkshire Club on having averaged nearly 27 hrs. flying a week for the first five weeks since Mr. Beck took charge. (4) The Bristol and Wessex Club on their contributions to the "Club Notes." (5) Messrs. A. V. Roe and Co. Ltd. on capturing the first light aeroplane World's Record.

[From the Club's "Official Organ," *The Elevator*, one learns the Mr. R. Williams, hitherto editor of that publication, and one of the original Committee of the Club, and late R.N.A.S., has resigned. The new editor of *The Elevator* says: "Among the many things which he has done for the Lancashire Aero Club has been a source of delight and joy to the many readers who have encountered the work of his subtle pen." One feels that one must have missed something, for one has not seen the publication for months and months.]

The new editor has certainly made *The Elevator* elevating, though some of the advice, warnings or whatnots come parous high level, or at any rate language calculated to provoke a breach of the peace. But he must be forgiven much for his "footline" Limerick thus:—"A gambling cockroach from Gloucester was flown by a fellow called Foncaster. He landed at Bute in a large parachute, saying 'Where's my machine? I have loucoster.'" Members of other Clubs are advised to get a copy, if they can.—C. G. G.]

The Newcastle-upon-Tyne Aero Club.

Report for week ending May 15.
Total flying time 28 hrs. 20 mins.—14 hrs. 40 mins. on LX and 13 hrs. 30 mins. on QV. *Dual.*—17 hrs. 5 mins. "A" Pilots.—8 hrs. 40 mins. *Joy-rides* with Mr. Parkinson.—2 hrs. 25 mins. *Instruction.*—Mrs. Heslop, Messrs. Heaton, Wood, Pargeter, Shaw, Rasmussen, Miesgaes, Mardill. "A" Pilots.—Mr. R. N. Thompson with Mr. A. Bell, Mr. C. Thompson, Mr. H. Ellis and Mr. A. Bell. *Joy-rides.*—Mrs. Heaton. Mr. Parkinson also flew with members of the "Blue Saraphan" Company who were visiting Newcastle.

QV was flown to Hamble by Mr. Parkinson with Miss Leathart as passenger. Mr. H. Ellis was the passenger on the return trip.

In addition, 3 hrs. 30 mins. was flown on the D.H.53 by Messrs. Heppell, R. N. Thompson, H. Ellis, W. Baxter Ellis and J. D. Parkinson.

Report for week ending May 22.
Total flying time 23 hrs. 40 mins.—17 hrs. 10 mins. on QV and 6 hrs. 30 mins. on LX. *Dual.*—12 hrs. 15 mins. "A" Pilots.—25 hrs. 25 mins. *Solo.*—1 hr. 30 mins. *Joy-rides* with Mr. Parkinson.—2 hrs. 20 mins. *Test.*—10 mins. *Instruction.*—Mrs. Heslop, Mr. Jewett, Mr. Heaton, Junr., Mr. Pargeter, Mr. Hayton, Mr. Shaw, Mr. Swann, Mr. Gibson. *Solo (Training).*—Mr. Bainbridge, Mr. Turnbull. "A" Pilots.—Mr. C. Thompson with Mr. Gibson and Mr. Campbell. Mr. H. Ellis with Mrs. White, Mr. Thirlwell, Mr. Carroll. Mr. Baxter Ellis with Mr. A. Bell, Mr. P. Forsyth Heppell. Mr. R. N. Thompson with Mr. Percy.

Mr. Baxter Ellis flew in connection with local Empire Day celebrations.

Mr. R. N. Thompson and Mr. H. Ellis flew over the Camp of the Tyne Electrical Engineers to assist with sound ranging practice.

The Yorkshire Aeroplane Club.

Report for week ending May 21.
Total flying hours 24 hrs. 45 mins. *Dual* with Mr. Beck.—14 hrs. 10 mins.—Miss Watson, Messrs. B. Dawson, Thomson, R. K. Lax, Leethams, H. Batcock, D. D. Little, Ambler, Bramham, Oglesby, Miller and Dr. Ling.

Solo.—10 hrs. 35 mins. by Messrs. Wood, R. K. Lax, M. B. Lax, Henry Leetham, L. S. Dawson, Clapham, Wayman and Mann.

On two days during the week flying was impracticable owing to high winds and fog.

Quite an orgy of first solos happened last Sunday; Messrs. R. K. Lax, Batcock, D. D. Little and Henry Leetham being launched in great style. The last two may be considered as first soloists in that, although they have both made one solo flight previously, they have not been near an aeroplane for some six months.

On Tuesday Lord Ossulston and his Moth paid a visit. Mr. Loader with Mr. Stanhope Sprigg, of Airways, also Mr. Bell, Secretary of the Newcastle Club.

Mr. Beck has been amusing himself with the Blackburn Bluebird which was left here by Sq. Ldr. Longton on his return from the Hampshire Club. The Bluebird, Sq. Ldr. Longton took Messrs. Thornton and Ely of the Blackburn Aeroplane Co. for short flights, after which Mr. Beck took Mr. Charles Blackburn up. Mr. West again took a 'busman's holiday and helped us out with joy-rides and instruction.

The Hampshire Aeroplane Club.

Report for Nine Days ending Sunday, May 23.
"THE AEROPLANE" is not in the habit of publishing stale news.—So said C. G. G., in his issue of May 4, and to help him in his very laudable efforts we will in future end our week on Sunday night, so that our week-end activities may be included in the current issues of this paper.

Four days of the above period were non-flying days, gales on three, and the fourth was blank by reason of a pupil putting his foot through a rib of the bottom plane.

Some idea of the strength of the wind during the gale may be gathered from the fact that a Ford delivery van was blown over on a road close to the aerodrome.

Flying times:—*Instruction* flying, 6 hrs. 15 mins. *Solo* flying, 2 hrs. 20 mins. *Joy-rides*, racing, etc., 4 hrs. 20 mins. *Test* flights 1 hr. 5 mins. *Total*, 14 hrs.

Instruction.—M. R. Berney 55 mins., Major C. E. Jenkins 50 mins., W. D. Cox 40 mins., F. G. Moloney 35 mins., N. J. Kishon 35 mins., R. H. Chaffey 30 mins., W. P. Courtney 30 mins., — Whittle 25 mins., T. F. Brewster 20 mins., D. A. R. Cripps 20 mins., B. Henderson 15 mins., R. H. Bound 10 mins., and W. Clymo-Southcliffe 10 mins. *Soloists.*—Flg. Off. R. F. Overbury 30 mins., E. I. C. Wyllie 30

mins., K. P. L. Bowen 25 mins., A. M. Keeping 15 mins., M. B. Shepherd 10 mins., Flt. Lt. Crawford 10 mins., Lt. A. M. Kimmins, R.N., 10 mins., and Flg. Off. C. Clarkson 10 mins. *Joy-riders*.—Miss Jenkins, Miss Swift, Mr. Bucklen, Lieut. Graham, R.N., A. R. Vanden Bergh, R. L. Carter, R. H. Bound, Mr. Fortlage, Mr. Puttock and Miss Renfrew.

McCracken, our ground engineer, has had to cope with an additional responsibility during the last few weeks, for a skylark became so impressed with Mr. Thomson's efficient and thorough method of instructing pupils to fly, that she decided that her offspring should benefit by his guidance, and she built a nest and fitted it up complete with four eggs under a tuft of grass on the busiest part of our tarmac.

Great caution on the part of our pupils and instructor prevented the small factory being demolished by taxying Moths and Avians, but the advent of the Pageant brought added danger, so the nest was protected by bricks laid on three sides, and this precaution undoubtedly saved the four small monoplanes which duly appeared on May 15, for one large aircraft actually taxied right over the bricks without doing any damage to the additions to our stock.

They were duly passed A.I.D., and are now on the point of going solo.

We duly appreciate the helpful suggestions for organisation which have been published in reports of our Pageant, and, being wise after the event, we realise their wisdom. However, we have gained a great deal of experience which will be invaluable to us when organising our next event, but whatever we accomplish, we shall never be satisfied, so that's that.—R. H. Z.

Norfolk and Norwich Aero Club Notes.

Sir John Rhodes landed on Sunday afternoon, 8th inst., and after a picnic on the Aerodrome he took some petrol on board his Moth and left for Stag Lane.

Boulton and Paul Ltd. delivered a large new bombing machine to the order of the Air Ministry on Monday. The machine was flown away by the firm's pilot.

The Boulton and Paul P.9, flown by Sq. Ldr. Rea, represented the Club at the Hamble Air Pageant and is the first machine flown by a member of the Club in a race. Unfortunately although finishing first in the Wakefield Cup Race, it was disqualified for cutting a corner.

The Club House is at present being re-conditioned and re-painted so as to be ready for the official opening which it is expected will take place very shortly.

The Club Moth is now almost ready and is having the badge affixed. Delivery is expected next week.

The P.9 machine has been flown to Martlesham Heath every day this week with personnel of Boulton and Paul's, on the firm's business.

The following notes by a humorist signing himself "Stratford" appear in a Norwich paper:—

Several weeks have elapsed since the club was formed. The time has arrived when members, would-be members, and interested observers are inquiring what progress has been made. A few notes regarding the preliminary "spade work" will, therefore, be welcomed by all those who have faith to vision our ancient city as a thriving Air Port of the future.

Firstly, the committee have been anxious that this club should start on a good substantial foundation. With that object in view the several members of the committee have, with truly laborious patience, searched, schemed, and planned that this club should benefit by the experiences of other light plane clubs.

Forming an Aero Club is by no means a simple matter of routine, neither is the promotion thereof an affair to be overcome by a few flamboyant resolutions by ebullient committeemen. Having attended most meetings, one is fully aware of the difficulties, real and imaginary, which have confronted the dozen or so stalwarts engaged in unravelling the mysteries of aerial regulations.

Without attempting to make a complicated matter more confusing, it may be stated that the committee has delved deeply into the questions of Government regulations (shoals of them), company promotion, insurances of planes and of members, subscriptions, officials, membership, Aero Club affiliation, aerodrome equipment, flying fund, engagement of qualified pilot, and the host of details which must be settled before the ambitious and enterprising spirits of the community can submit themselves to trial before the "Grand Jury of the Skies."

Only one thing remains before Moth No. 1, now ready and gaily decorated with City and County Arms, can be despatched to the breezy heights of Mousehold. The consent of the War Office to sub-let the use of the Aerodrome is now the only obstacle to our ambitions. This permission is hourly expected. The War Office has never been renowned for flying, neither in an aerial or any other sense, as all ex-soldiers know, but a usefully-worded telegram from no less a person than our Lord Mayor is expected to achieve speedy results. Indeed it is hoped within two weeks to see our first 'plane flying in the areas where neither moth nor dust doth corrupt, and where Governments do not break through nor steal the Road Fund.

Now what has the committee accomplished? Firstly, the club is to be a limited liability company, in which members can, if they wish, take shares. The club will be governed by a council. The flying ground and club headquarters will be at Mousehold Aerodrome. The club house kindly loaned by Messrs. Boulton and Paul Ltd. is on the ground, and if of modest dimensions is at least serviceable and useful. A competent and thoroughly recommended pilot instructor has been engaged on the recommendation of our club experts, and commences

his duties on June 1. One 'plane is ordered and ready to leave works. Club badges are ready, and may be secured at Messrs. Rossi's. The club is affiliated to the Royal Aero Club.

THE BOURNEMOUTH WHITSUNTIME MEETING.

Following is a list of the races to be flown at the Emsbury Park Racecourse, Bournemouth, on June 4 and 6, Whitsun Saturday and Monday:—

Private Owners' Handicap (Stakes £30).—Open to any type of aeroplane privately owned by and registered in the name of an individual. The definition of "privately owned" is at the sole discretion of the Royal Aero Club, who reserve the right to refuse any entries. Open to all Pilots not necessarily the owners of the Aeroplanes. Course approximately 10 miles. First Prize £50. Second Prize £20. Third Prize £10 if six or more starters.

High Power Handicap (Stakes £20).—Open to any type of aeroplane with engine of 100 h.p. or over. Open to all Pilots. Course approximately 10 miles. First Prize £40. Second Prize £20. Third Prize £10 if six or more starters.

Medium Power Handicap (Stakes £100).—Open to any type of aeroplane fitted with an engine weighing not less than 185 lbs. or more than 285 lbs. Open to all Pilots. Course approximately 10 miles. First Prize £60. Second Prize £25. Third Prize £15 if six or more starters.

Ladies' Purse £35.—Open to any type of aeroplane. Open to Lady Pilots only. Course approximately 10 miles. First Prize £20. Second Prize £10. Third Prize £5 if four or more starters.

Low Power Handicap (Stakes £35).—Open to any type of aeroplane the total piston displacement of the power plant of which does not exceed 1,500 c.c. Open to all Pilots. Course approximately 10 miles. First Prize £20. Second Prize £10. Third Prize £5 if five or more starters.

Bournemouth Hotels' Association Sweepstake.—The Proprietors of certain Hotels in Bournemouth wish to subscribe to a Handicap Sweepstake Race. The Stakes provided will be allocated as follows:—First: 35 per cent. to the Owner of the aeroplane. 30 per cent. to the Hotels entering. Second: 15 per cent. to the Owner of the aeroplane. 10 per cent. to the Hotel entering. The balance of 10 per cent. goes to the Winners of Heats not placed in the Final. The aeroplanes will be allocated to the various Hotels by the Royal Aero Club. It is expected that the stakes will amount to £150. Course approximately 10 miles. Owners of aeroplanes are requested to state if they are prepared to allow their aeroplanes to race under these terms. No entry fee is required from the Owner of the aeroplane.

Bournemouth and District Business Houses Sweepstake.—The Proprietors of certain Business Houses in Bournemouth and District wish to subscribe to a Handicap Sweepstake Race. The stakes provided will be allocated as follows:—First: 35 per cent. to the Owner of the aeroplane. 30 per cent. to the Business House entering. Second: 15 per cent. to the Owner of the aeroplane. 10 per cent. to the Business House entering. The balance of 10 per cent. goes to the Winners of Heats not placed in the Final. The aeroplanes will be allocated to the various Business Houses by the Royal Aero Club. It is expected that the Stakes will amount to £150. Course approximately 10 miles. Owners of aeroplanes are requested to state if they are prepared to allow their aeroplanes to race under these terms. No entry fee is required from the Owner of the aeroplane.

Consolation Handicap (Stake £50).—Open to any type of aeroplane which has not won a race during the Meeting. Open to all Pilots. Course approximately 10 miles. First Prize £25. Second Prize £15. Third Prize £10 if six or more starters.

A LIGHT AEROPLANE HEIGHT RECORD.

At Hamble on May 19 the Hon. Lady Bailey and Mrs. Elliott Lynn (who retired from aviation some months ago as quietly as an operatic star making a farewell performance) together in an Avian (Christus Mk. II) reached a height shown on a barograph (uncorrected) as 16,000 ft. This is claimed in the Press as a Women's Record. The Royal Aero Club states that no such category of records exists.

There is, however, a category for Light Aeroplane Records, and as no mere man has so far gone for any of these records, this performance, whatever it may prove to be after proper correction, will stand for the time being.

QUICK WORK.

Readers of THE AEROPLANE who have aircraft of their own and from time to time want them tuned up or reconditioned will be interested to know that the S.E.3a, which, piloted by Mr. B. Youell, won the Morris Cup at the Hamble Pageant on May 15, was tuned up for the occasion by the Henderson Flying School Ltd. at Brooklands after having been primarily reconditioned by Mr. Hunter of Twickenham. It was only received by the Henderson firm on Tuesday, May 10. It was completely rigged, passed for its Certificate of Airworthiness, the engine was tuned up, adjusted and tested, and it was flown for the first time on Friday, May 13. After that the rigging was re-adjusted, the engine was looked over again and the machine was flown to Hamble, on Saturday, May 14, by Mr. Youell.

In the race itself the machine showed that it had a first-class performance and was quite equal in speed to the S.E.3a owned by Mr. Dudley Watt, which is acknowledged to be an exceptionally good machine. Which shows how much work can be done, and done properly, in a short time by skilled mechanics well led in a proper spirit of sportsmanship and enthusiasm.

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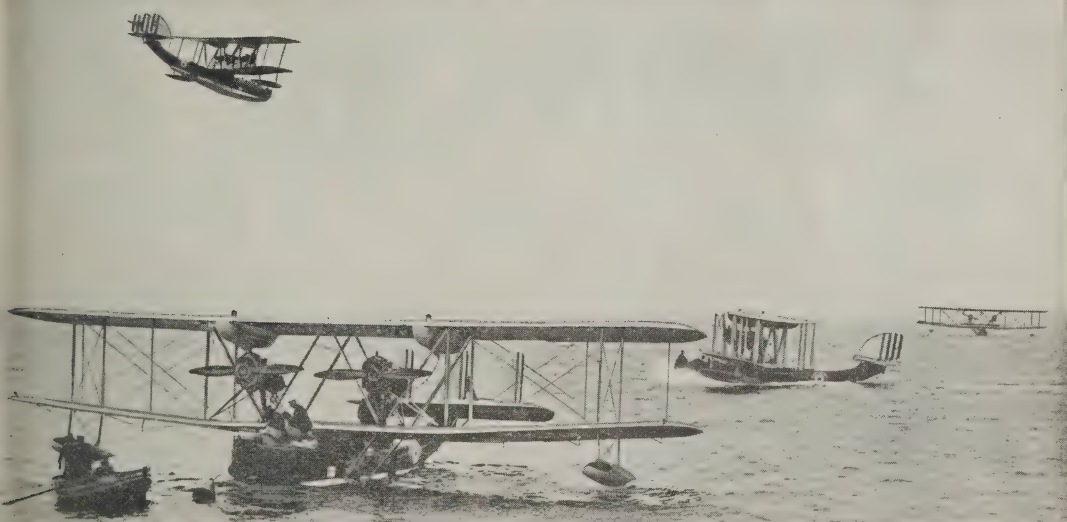
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COMMERCIAL AERONAUTICS.**The London Terminal Aerodrome.****ANALYSIS OF FIGURES FOR THE PAST WEEK.**

Trips per Day—Monday, 18; Tuesday, 18; Wednesday, 21; Thursday, 23; Friday, 21; Saturday, 22; Sunday, 11.

IMPERIAL AIRWAYS LTD.:

Paris—London; London—Brussels—Cologne: Machines 44, passengers 425, freight 19 tons.

AIR UNION:

Paris—London: Machines 39, passengers 75, freight 12½ tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 17, passengers 63, freight 6 tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 19, passengers 35.

SABENA:

Brussels—London: Machines 12, passengers 13.

PRIVATE:

Machines 3, passengers 3.

Total number of trips by British Machines, 47, carrying 428 passengers. Foreign Machines, 87, carrying 186 passengers.

Comparative Figures:

Week ending May 22:

Machines, 134; Passengers, 644; Crews, 217; Total personnel, 831.

Corresponding week, 1926:

Machines, 136; Passengers, 624; Crews, 174; Total personnel, 798.

Corresponding week, 1925:

Machines, 127; Passengers, 493; Crews, 152; Total personnel, 645.

Corresponding week, 1924:

Machines, 81; Passengers, 271; Crews, 120; Total personnel, 401.

Corresponding week, 1923:

Machines, 105; Passengers, 353; Crews, 175; Total personnel, 528.

Corresponding week, 1922:

Machines, 162; Passengers, 337; Crews, 198; Total personnel, 532.

Corresponding week, 1921:

Machines, 89; Passengers, 350; Crews, 106; Total personnel, 456.

Corresponding week, 1920:

Machines, 91; Passengers, 138; Crews, 98; Total personnel, 236.

Croydon Notes.

The following appeared in *The Morning Post* and other papers on May 24:—

"A man alighted from a D.H. Moth at Croydon Aerodrome last night, and said to an official, 'Can I leave my machine here?'"

"'Yes,' said the surprised official. 'When do you want it?'"

"'To-morrow morning.'"

"The airman was Mr. Dennis Rook, who intends to take off this morning on a flight of 10,000 miles to Australia. He intends to fly to Australia in easy stages. It is purely a sporting flight."

In view of the high price of air-garaging one can quite understand that an official of Croydon Aerodrome should be surprised by the owner of a Moth asking whether he could leave his Moth overnight.

As a matter of fact the Mr. Dennis Rooke in question has bought a long-range single-seat Moth of the "Stackanleete" type and he is going for an unplanned tour in it. He will first of all visit Egypt and then India. It is possible that after that he may decide to go to Australia. It is equally possible that he may decide to come back to England again.

The traffic at Croydon is increasing steadily and it seems as though we are at the genesis of a big exodus and incursion of numbers of all sorts and conditions of aircraft. Among the types to be seen daily at Croydon are Argosy, Handley Page W.8b, W.8F (Hamilton), W.9 (Hampstead), W.10, D.H.50, Fokker F.VIIa, Junkers, Rohrbach, Goliath, Loiret et Olivier, Moth, Avian, Martinsyde, D.H.9a, Avro and Bristol Fighter. Overhead Gamecocks, Grebes, etc., gambol. No doubt there are others to be seen at times, but one forgets their names.

On Sunday, Sir Alan Cobham went as a passenger on the midday Silver-Wing Argosy to Paris to greet Capt. Lindbergh. Another case of the Mountain going to Mahomet.

So far as one can gather neither Mr. Barclay nor Mr. Perkins has been seen over the other side of the aerodrome starting to build the new hotel. We shall all be over the other side in October and we shall be very cross with Mr. Barclay and Mr. Perkins if they make us spend the winter in a cold and draughty temporary structure. So what about it?—G. D.

Proh Peccatus.

In the account of the A.I.D. Dinner, published in *THE AEROPLANE* recently Mr. Maxwell-Muller was described as the Works Manager of Vickers Ltd., Weybridge. A mutual friend writes emphatically to point out that in fact Mr. Muller is Superintendent of the Vickers Works at Weybridge and is a Special Director of Vickers Ltd.

The Works Manager at Weybridge is our old friend Mr. A. Knight, who is well known to all the early K.A.F. pilots who in pre-War days were trained at Brooklands as one of the best, and certainly one of the most masterful, of flying instructors. Also he is one of the first British pilots, his certificate being No. 6 in the list.

One was aware of the relative position of these two distinguished pioneers of British Aviation, having had the privilege of counting them among one's aeronautical friends since 1910 or thereabouts. But, with true journalistic carelessness about the niceties of title and rank, one had never taken the trouble to ascertain the precise name for their respective jobs in the hierarchy of Vickers Ltd. So now one knows, and one will not offend again. No matter what they were called they would both be among the most efficient and useful members of the aeronautical community.—C. G. G.

MEANS TO AN END.

The dope used throughout the doppable portion of Capt. Lindbergh's Ryan monoplane was Titanite.

As is usual on American engines the magnetoes of Capt. Lindbergh's Wright Whirlwind engine were Scintillas.

K.L.G. plugs were used in the Cirrus engine of the Avro Avian on which the Hon. Lady Bailey and Mrs. Elliott Lynn established a height record for light aeroplanes last week.

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PERSONAL NOTICES.

DEATH.

PORTER.—On May 19, at Karachi, Flt. Lt. Edward Ernest Porter, M.B.E., D.C.M., R.A.F.

Flt. Lt. Porter was promoted from the ranks during the War 1914-18 and appointed to a commission in the Somerset Light Infantry. He was attached to the R.F.C. and awarded the M.B.E. in June, 1919, for his services in France with the R.F.C. and R.A.F.

After the Armistice he was posted to the Electrical and Wireless School at Flowerdown as Senior Stores Officer. In January, 1922, he was promoted to the rank of Flt. Lt. In April, 1925, he was posted to Duxford and in January, 1926, to the Aircraft Depot, Hinaidi. He was one of the seven officers of the Stores Branch qualified to take charge of magazines and explosives.

FORTHCOMING MARRIAGES.

ANSON-ALLEN.—The marriage arranged between Mr. Henry A. Anson, R.A.F., and Miss Suzanne Allen will take place on June 2 at Holy Trinity Church, Brompton, S.W.

DALY-TEALE.—A marriage has been arranged, and will take place early in June, between Flt. Lt. G. D. Daly, D.F.C., R.A.F., only son of Maj.-Gen. A. C. Daly, C.B., C.M.G., Baghdad, and Mrs. Daly, and Dorothy, only child of Mrs. G. L. H. Manby and the late Alan Teale, and step-daughter of Maj. G. L. H. Manby, late the Sherwood Foresters, of Bray, Berks.

PANTER-KEMPLE.—An engagement is announced between Wing Cdr. Arthur Edward Panter, R.A.F., eldest son of the late Rev. C. E. Panter, M.A., R.N., and Marie Howard Kemple, only daughter of Lieut.-Col. J. H. Kemple, O.B.E., and Mrs. Kemple, of Lancefield, Harrow Weald, Middlesex.

BIRTHS.

BAKER.—On May 15, at Farnborough, to Jamesie Derby, wife of Sq. Ldr. B. E. Baker—a daughter.

BRIGGS.—On May 17, at "Ellesmere," Lee-on-Solent, to Mary Stewart (née Lawther), wife of Flt. Lt. L. R. Briggs, R.A.F.—a son.

ELLIOTT-SMITH.—On May 15, at Biggin Hill House, Westerham, to Margot (née Piffard), wife of Sq. Ldr. C. Elliott-Smith—a daughter.

MASTERS.—On May 23, at Harwell, Steventon, Berkshire, to Daisy, wife of Flt. Lt. C. H. Masters—a daughter.

YOUNG.—On May 18, to Hylda, wife of Sq. Ldr. P. H. Young, R.A.F.M.S., The Old Schoolhouse, Halton, Bucks—a son (Ian).

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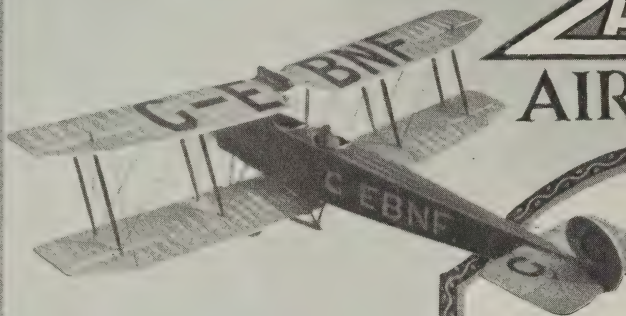
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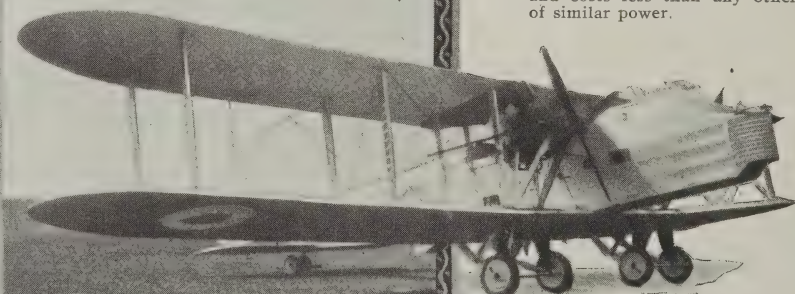
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JUNE 1,
1927.

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ITALY'S AIR BARRIER.

No country in the World has greater need of air defence than Italy. In this respect Italy is singularly like England. And there is therefore much interest in the fact that Italy, by the formation of the Regia Aeronautica, is the first of the great Continental Powers to adopt the principle of an independent Air Force on the lines of our Royal Air Force, entirely separate from the Army and Navy.

History shows us that in the past Italy has been invaded on many occasions by hostile forces. In the earliest days the Gauls sacked Rome. Later Hannibal crossed the Alps from Gaul and though he never captured Rome he became a nuisance all over Northern Italy. Still later the Goths invaded Italy from the North-East and not only captured Rome but established the Gothic power as the Western Roman Empire,—with excellent results, as shown by the physique and fighting power of the Northern Italians who are descended from the Longobardi or Lombards, and the various waves of Gothic invaders.

In these days, however, modern weapons and methods of defence can guarantee Italy against invasion through the Alpine passes of the North and North-West. And the Italian Army showed by the way in which it held up for three years the best efforts of Austria and Germany that Italy can be defended in the comparatively narrow open country between the Adriatic and the Alps.

The rest of Italy is open to attack from the sea. But all recent history has shown that, unless a nation has practically full command of the sea and can carry on sea transport almost without enemy interference, it is impossible to keep an army in enemy territory, even if that army can be defended.

We ourselves had many bitter lessons during the War of 1914 in the difficulty of landing troops against anything like adequate defences on land, even when the defenders had no aircraft. The old naval maxim that a gun on shore is worth two afloat is as true to-day as ever it was.

Therefore on the whole Italy need not fear actual invasion by sea or land. The position is actually that Italy is only really vulnerable to attack by air and that, given an Air Force which will prevent air attacks, the land and sea defences of Italy assisted by aircraft can quite easily make the country invulnerable.

An army without aircraft could defend Italy on the land, but aircraft attacking an advancing enemy in the passes of the Alps and the mountains North of the Adriatic could, adequately protected themselves against enemy aircraft, make the roads impassable by bombing and could gas the enemy army out of existence before it ever approached the Italian land defences.

Similarly, given an adequate supply of Italian torpedo and bombing machines, no enemy fleet could approach the Italian coast.

With such air defences the only thing Italy would have to fear would be raids by enemy aircraft from adjoining States.

ITALY'S VULNERABILITY.

There is little fear of a war between Italy and France, but if such a war should happen many of Italy's most important manufacturing centres would be within reach of trench bombing craft launched from aerodromes anywhere between Nice and Marseille, or even from the country between the Rhône Valley and the Maritime Alps.

Setting aside such a war as practically impossible, there is a very distinct possibility of air attacks on Italy from the Adriatic side. The little disputes which have occurred of late between Italy and the Kingdom of the Serbs, Croats and Slovenes are hardly likely to develop into a first-class war. But there is always the possibility of an ambitious Serbian leader being foolish enough to attack Italy in an endeavour to capture Fiume and the surrounding country which is claimed by Serbia. And in such an unlikely event any of the North-Eastern cities of Italy are well within reach of aircraft launched from the Dalmatian coast.

But the real danger is to be expected not from the Yugoslavs or any Balkan State. The danger is likely to come from some Russian Dictator of the future attempts to

conquer Europe from the East as Napoleon attempted to conquer it from the West.

Regular readers of THE AEROPLANE will remember that on various occasions an invasion of Europe by the Eastern Barbarians has been discussed. The theory has then been put forward that such an invasion, being held up on the North-West by a Nordic alliance of Germany, England and the Scandinavian countries on a fighting line stretching roughly from Danzig to the Alps, would naturally be forced down to the South-West, where there would be practically no effective resistance to a Russian advance through Roumania, Hungary and Yugo-Slavia till the advancing army was held up between the Alps and the Adriatic.

That is Italy's real danger point, and that is where the great Italian Air Force which is now being built under the guiding hand of the great Mussolini will be put to the ultimate test. Italy's Air Force will then be the guardian of Western Civilisation against the Eastern Barbarian, and all of us who live under the blessing of Western Civilisation must therefore be interested in what Italy is doing to prepare for that great defence.

ITALY'S DEFENDERS.

An excellent general view of the Italian Air Defence scheme may be got from a speech delivered recently in which Signor Italo Balbo, Under-Secretary for Aeronautics in the Italian Government, presented to the Italian Parliament the Government's new aeronautical programme.

Shortly after this important speech was delivered General Guidoni, one of the World's pioneers of Aviation and now the Italian Air Attaché in London, very kindly sent one of his condensed version of Signor Balbo's speech, knowing that its contents would be of interest to everyone connected with Aviation in this country, largely because Italy and Great Britain are the only two Powers which have independent Air Forces. This consideration struck one as being so interesting that one asked General Guidoni whether he would be good enough to ask Signor Balbo's personal permission to publish it in THE AEROPLANE.

Not only was permission promptly forthcoming, but with it came a very graceful letter from Signor Balbo indicating his appreciation of the work which this paper has endeavoured to do for Aviation in the past. The letter reads as follows:—

"Ministero dell'Aeronautica

"Il Sottosegretario di Stato,

"Rome,

"10 Mag. 1927.

"Nel momento in cui la vostra Rivista porta a conoscenza del pubblico inglese il mio rapporto al Parlamento italiano sul programma aeronautico, sento il bisogno di ringraziarvi per gli apprezzamenti cortesi che avete sempre avuto per la nostra aviazione.

"L'Aeronautica italiana è foggata a somiglianza di quella inglese: e come entrambe sono le sole forze aeree indipendenti in Europa, così sono anche le sole che possono collaborare con la stessa schietta amicizia che unisce i due Paesi.

"Noi abbiamo visto con piacere passare nel nostro cielo possenti apparecchi inglesi diretti alle più lontane parti dell'Impero, le quali alla loro volta hanno ricevuto con cordialità la visita dei nostri piloti.

"Le cortesie reciproche hanno rinsaldato l'amicizia fra le due aeronautiche.

"Auguro alla vostra Rivista, che da 16 anni combatte la battaglia dell'Arma Aerea, il più lieto successo.

"Cordialmente vostro,

"ITALO BALBO."

Which, being interpreted, is:—

"Ministry of Aeronautics.

"The Under-Secretary of State,

"Rome,

"10 May, 1927.

"At the moment in which your Review is presenting to the English People my Report to the Italian Parliament

on our aerial programme I wish to thank you very much for the kind appreciation you have always had of our aviation.

"The Italian Aeronautic Service has developed on lines similar to those of the R.A.F. and as they are the only independent Air Forces of Europe they are the only ones which can collaborate with the same true friendship as exists between the two countries.

"We have seen with pleasure the powerful English machines flying over Italy directed to the most extreme parts of the Empire, which on the other hand have received with great cordiality the visits of our pilots.

"Reciprocal courtesies have strengthened the friendship between our Air Forces.

"I wish to you and to your review, which for last 76 years has fought for the cause of the Air Force the best success.

"Cordially yours,
"(Signed) ITALO BALBO."

A PERSONAL APPRECIATION.

One appreciates the honour of being allowed to present this letter to the British aeronautical community. During the War 1914-18 the Italian Flying Services were our very good friends. And of the great fighting pilots of the War Italy produced a number fully in proportion to the total number of her aviators.

No war pilots surpassed in valour the great Major Barracca, who was killed fighting against heavy odds in the later days of the War, or greater than the very-much-alive General Piccio, whom some of us had the pleasure of greeting at the recent International Air Transport Congress.

And many of the pioneers of aviation in this country will remember with affection little Giovanni Sabelli, who learned to fly at Brooklands and became one of the most skilful of Deperdussin pilots. Many of us have good reason to remember his kindness of heart, his humour, and his continual cheerfulness and good nature.

Sabelli died in an air fight over the Austrian lines gallantly supporting Major Barracca, concerning whom, not long before his death, he had written one personally a letter glowing with admiration of the great aviator, and saying nothing about his own exploits, though one has since learned from other Italian aviators that Sabelli himself was one of the most admirable of pilots.

Since the War many British pilots who have flown across Italy on their way to the East have good cause to remember the unflinching hospitality and kindness of Italian aviators.

There was a time, before the great Mussolini took charge of Italy, when Italian aerodromes were very badly managed and badly run. The ground was badly kept and supplies were hard to get. But that was only the after effects of the War, when everybody was tired of living up to a military standard.

Even when affairs were at their worst everybody who ever landed on an Italian aerodrome was hospitably received and well treated so far as the capabilities of the people on the aerodrome permitted. And of late there has been a great change. Discipline has been restored, but the old proverbial kindness and hospitality of the Italians remains.

Sir Samuel Hoare, since his return from his journey to the East, has continually borne witness to the hospitality which he received when the de Havilland Hercules landed in Italy. And Mr. Neville Stack, who has spoken on several occasions since he came home from his flight on a Moth to India, always says that nowhere did he have such a good time as at his Italian landing places.

Our only regret is that living at the end of the World's air routes instead of in the middle we in this country have

so little opportunity of repaying the kindness that our air travellers have received in Italy. In saying that "reciprocal courtesies have strengthened the friendship between our Air Forces" Signor Balbo perhaps does less than justice to his own country, for we on our part have not had much opportunity of reciprocating.

The thanks of British Aviation in general are due to Signor Balbo for his courteous message, which thanks one has the honour of conveying to him here.

We may now turn to Signor Balbo's speech, editorial comment being added in brackets at the end of each section.

ITALY'S OFFICIAL SCHEME.

THE VALUE OF AERONAUTICS.

General Balbo, after pointing out that the importance of Civil Aviation is perhaps greater than that of military air force calls attention to the peculiar situation of Italian industrial and military centres, which are easily reached by an aeroplane starting from Nice, Ajaccio, Lubiana or Cattaro, whilst for Italian aircraft there are no important targets in the adjoining countries.

It is doubtful, he says, whether an air force, however powerful, can defend a country from the invasion of a strong Army and Navy, but it is absolutely certain that an Army and Navy, without aircraft would be powerless against the offences of a strong Air Force.

Any money spent on the Air Force will benefit the Army and Navy.

Italy has spent on Aviation in the years 1920-1927 only 19 million pounds, compared with 56 millions of France, 63 millions of U.S. and 163 millions of Great Britain.

[From this first paragraph the essential sanity of Signor Balbo's views may be judged. His point that any money spent on the Air Force will benefit the Army and Navy is well worth remembering.

The figures which he quotes for Italy's expenditure on her Air Force in the last seven years are remarkable. In a way Italy is fortunate in having spent so little, for having spent little the Italian Air Force has all the less old material to clear out of the way when re-equipping with thoroughly up-to-date aircraft and armament.]

ADMINISTRATIVE DEVELOPMENTS.

The Air Ministry needs a special department for supply of material. The system of competitive tender is very dangerous, as it allows cutting of prices by stronger firms in order to eliminate the competition of smaller firms.

The Service of Supply is to be reorganised with a Directorate of Constructions and Repair, a Directorate of Material and Airports, and an Aircraft Establishment devoted to experimental and research work.

A Technical Committee is to advise the Secretary for Air on all technical questions, corresponding to the Air Council of the British Air Ministry.

[Signor Balbo's remarks about the system of competitive tender should be taken to heart by those people in our Treasury who are in favour of putting out aeroplane contracts to competitive tender. The United States has only recently discovered the evils of such a system and the new American Air Corps programme specifically provides against such competition in price cutting with its attendant evils of cheap material and scamped workmanship.

The grouping of the Departments in the Service of Supply is interesting.]

AERIAL WARFARE.

The training of pilots in all kinds of aerial warfare is to be developed at its utmost.

A thoroughly practical Air Staff College should be created in a short time in order to give the officers the necessary experience.

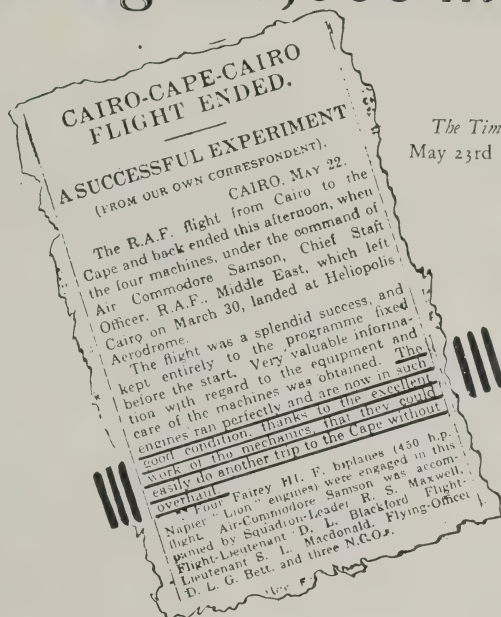
The programme for airships is to be reduced to a small number of medium size, as the semi-rigid type does not seem to be adaptable to the greatest capacities. These units will be employed by the Navy for traffic scouting.



at 11 mos. grey. Estate della 2.10.18
"L'Aeroplano"
Italo Balbo

Roma, 10 maggio 1927-V

Napier Reliability during 100,000 miles



The Times
May 23rd 1927

This is the second Cape flight carried out within twelve months by the Royal Air Force.

On both occasions Napier engines were selected.

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The Air Force has the greatest interest in Chemical Warfare, for perhaps it will be the best user of gas in case of War.

[The recommendation that an Air Staff College should be created may be taken as a compliment to the success achieved by the R.A.F. Staff College at Andover, and one hopes that the first Commandant of our Staff College, who did all the hard work of organising it, will feel duly rewarded.]

The reduction of the airship programme seems wise. Italy has achieved remarkable success with the semi-rigid type of airship, and is wise to stick to that type while the bigger and richer countries experiment with the big rigid ships.

Signor Balbo's brief remark about the use of gas by the Air Force has peculiar significance in view of the efforts which have been made by some unpractical people to induce the League of Nations to endeavour to prohibit the use of gas bombs in air attacks.]

WORKS AND BUILDINGS.

Credits for works, buildings and lands will be increased, in order to improve life conditions and commodities of personnel, which is compelled to live far away from important centres.

County councils must give their financial aid for the establishment of emergency fields.

[This shows the advantage of having an all-powerful person at the head of affairs. Readers will note that instead of officials suggesting humbly to local authorities that they should give support to their local aerodromes and to their local flying clubs Signor Balbo announces boldly that the local authorities must give financial aid to the establishment of emergency landing grounds.]

A little similar compulsion in this country would cost practically nothing in capital outlay to the localities concerned and the existence of local landing grounds would a very few years hence increase quite considerably the amount of business done in those localities.

The spending of money on works and building so as to improve the conditions of the personnel of the Regia Aeronautica is wholly praiseworthy. One remembers only a few years ago the attacks published in the British papers on the Air Council in general and on Sir Hugh Trenchard in particular for spending money on bricks and mortar when, it was alleged, he ought to have spent it on new aeroplanes and on training pilots, the authors of such attacks quite forgetting that there is no use in having machines and pilots if there are no mechanics to keep the machines in order and no houses in which officers and men can live in comfort.]

ANTI-AIRCRAFT DEFENCE.

The territorial and anti-aircraft defence which comprises air force units, scouting and alarm stations, and anti-aircraft artillery, must be united under one command, possibly that of the Commanding Air Force Officer of the area.

[The combination of anti-aircraft ground units with co-operating air units under an Air Force officer seems good provided that the Air Force officer himself has had experience of the weapons used.]

This subject is well discussed in the lecture delivered by Major-General E. B. Ashmore, C.B., C.M.G., M.V.O., to the Royal United Service Institution on Nov. 24, 1926, and those interested should procure a copy of the R.U.S.I. Journal containing that lecture.]

RAW MATERIALS.

One of the most important questions for Italian Aviation is that of raw materials. Some can be produced in Italy, some cannot but can be substituted, others are only supplied by foreign countries. These last must be stored in large quantities in peace time.

But Italy has already succeeded in producing home materials to be used instead of imported ones. So mineral lubricating oils have been substituted for castor oil, wool fabric for silk. Steel and light alloys are now at hand. Research will be developed with the aim of using Italian wood instead of imported.

The controversy pro and con all-metal aircraft has not yet come to a conclusion. Both systems have advantages

and disadvantages. It is therefore the intention of the Air Ministry to develop metal construction whilst not abandoning wood construction, in order to gather more experimental data.

[This programme for the provision of her own raw materials and fuel for aircraft will be watched with interest. Northern Italians are among the most brilliant engineers, and Italy certainly has the finest craftsmen in the World. There is no such thing as a bad Italian automobile. All Italian aircraft, and especially Italian aero-engines, have always been beautifully built.]

Italy has apparently unlimited electric power derived from her water-driven power-stations, and with this power has produced extraordinarily fine engineering work of all sorts.

The achievement of the Macchi Company in winning the Schneider Trophy in 1926, thanks to the inspiration of Signor Mussolini, and the achievements of the Savoia flying-boats piloted by the Marchese de Pinedo, show what Italian aircraft constructors can do. So we may expect great things from this new Italian air defence programme.]

DESIGN AND PRODUCTION OF AIRCRAFT.

The design of aircraft must be a national undertaking. Firms should develop a technical staff able to solve every problem in the design of aircraft. Only in exceptional cases can copies of foreign design be admitted, when for certain reasons the national industry has lost the lead.

Standardisation of material and unification of types will be the aim of the Air Ministry.

There must be only one type for every category of aeroplane: pursuit, observation, and bombing. Types will be changed only when a new experimental type has a striking superiority in service. Night pursuit, ground attack, and other specialities will be given up.

The characteristics of Italian bombing aircraft must be adapted to their geographical position; so they must have a great range, climbing-power and military load. In this the Italian Industry has a difficult task, but it can be trusted to succeed.

The Air Ministry will be very generous as concerns prices but, on the other hand, will expect from the Industry the complete fulfilment of contracts.

[Here again is a programme which, though ambitious, is capable of fulfilment, thanks to this new Italian Renaissance. The lines are in fact those on which our own Air Ministry is at present working, but they have not been expressed in the same concise and yet comprehensive way in this country.]

CIVIL AVIATION.

Italy has now five air routes, which amount to 2,700 miles: Turin—Trieste; Genoa—Palermo; Vienna—Rome; Brindisi—Constantinople; and Vienna—Zara.

Italy holds the record for the greatest stage of open sea (Genoa—Palermo); and for crossing very important mountains, the Alps and the Appennines, in winter time.

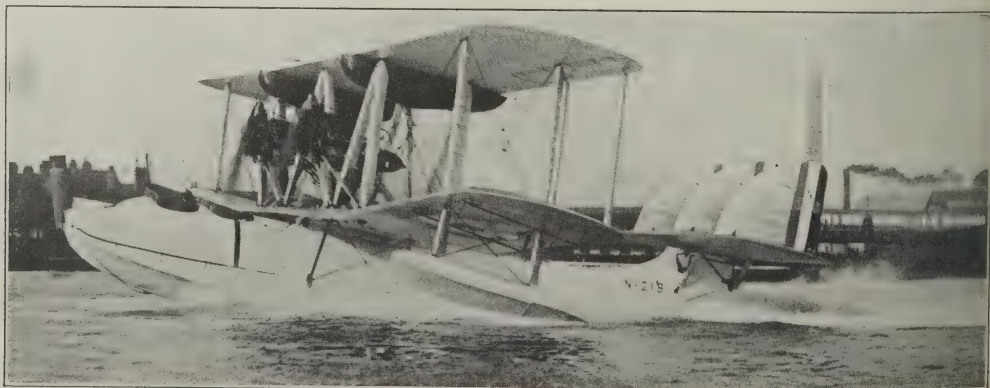
No fatal accident has yet occurred, although 400,000 miles have been flown and 6,300 passengers transported.

Five new lines will be established in a short time: Rome—Brindisi; Rome—Cagliari; Milan—Trento; Rome—Tripoli; and Brindisi—Valona.

Conventions should be signed with North European Countries in order that air traffic will take the Italian route instead of being diverted into the Balkans or Spain. Italy is ready to allow necessary facilities to foreign countries in exchange for similar concessions. Italy is the centre of the Mediterranean and must play an important part in all air routes which cross this sea.

Aerial survey and air tourism are to be encouraged. Pioneers will be asked to give their contributions towards the preparation of emergency fields.

[Until within the last twelve months Civil Aviation in Italy has



SEAWORTHINESS.—The new metal-hulled Supermarine Southampton (Napier Lion engines) getting off Southampton Water. A formation of these ships will start for the Far East in October next.

CAIRO CAPETOWN CAIRO



The Fairey IIIIF Aeroplane fitted with Napier "Lion" Engine.

The successful termination of the 1927 Royal Air Force Cairo—Capetown—Cairo flight under the command of Air Commodore Samson, C.M.G., D.S.O., A.F.C., brings to mind last year's trans-African flight under Wing Commander Pulford, O.B.E., A.F.C., when a similar Cairo-Capetown-Cairo journey was continued on to England with the machines converted to seaplanes. For both of these

flights Fairey aircraft were chosen, the former flight being undertaken by four Fairey IIID's and the latter by the same number of the new Fairey IIIIF's. The aggregate distance of these two flights is over 100,000 miles. Both operations were carried out by all four aircraft strictly to a pre-arranged time schedule and trouble-free runs were recorded. Fairey-Reed Airscrews were used on the IIIIF Aircraft.

FAIREY CRAFT

The Fairey Aviation Company, Ltd.
Hayes : : Middlesex.

hardly existed. But of late, as may be seen from the figures, Italian air lines have been very active. And judging by the way in which aviation is developing in Italy we may confidently expect to see not only a great development of Italian air lines but also a considerable amount of traffic in the form of extensions from other countries.]

PROPAGANDA AND RECRUITING.

The Institute of Propaganda has been suppressed and its work taken up by the Press Bureau and other branches of the Air Ministry.

The establishment has been increased by 500 petty officers and short-commissioned officers.

Technical officers will be increased, especially for inspection of works and buildings.

The important question of observers has been solved by using Army or Navy officers for Army and Navy Co-operation plans. Pilots are and must remain only R.A.F. officers.

For all other purposes observers will be ex-pilot officers who for certain reasons are no longer able to conduct their machines.

The Air Force Reserve will comprise all officers who have been in the Air Force and these will be given a yearly training.

[Here it is interesting to note that the Regia Aeronautica has instituted a Short Service scheme similar to that of the R.A.F. After admitting all the objections to the Short Service scheme there still remains the fact that it is the only possible method of obtaining and maintaining a large reserve of young pilots.

On the other hand, the Italian Government seems to have gone one better than our Air Ministry in resolving that observers for Army and Navy co-operation shall be officers of those Services but that all pilots must remain officers of the Air Force. The scheme of using former pilots who are no longer fit to be pilots as observers also has a good deal to recommend it, as against our method of retiring every officer who is unfit for full flying duties.]

AIR AND GROUND FORCE.

Pilots are not the only necessary personnel in the Air Force: general staff engineers, aircraftsmen, administrative and stores personnel are required.

It is necessary to keep this auxiliary personnel as low as possible. Italy has 17 men for every aeroplane in service, against 29 of France and 34 of Germany.

Flying activities are very high in all ranks, and, if anything, difficulty is experienced in finding officers for the Air Ministry Offices and Headquarters.

Every officer must have at least 15 hours of flying per half year.

[The figures for the number of men necessary to keep each aeroplane in service is interesting. It will be noted that Signor Balbo does not quote figures for our Air Force.

Probably our figures are a good deal higher than those of most other countries owing to the fact that every airman in the R.A.F. has to be a trained infantry soldier as well as an aircraftman, because, under the conditions of service in the British Empire, he may be called upon at any moment to do an infantryman's job in defence of his own aerodrome or camp.

In the great Continental conscript armies there are always men to spare for such defensive work, whereas the little British Expeditionary Forces and our small garrisons overseas have been cut down to such a ridiculously small size that men cannot be spared to defend the Air Force when it is on the ground.]

RULES AND REGULATIONS OF THE REGIA AERONAUTICA.

These are now ready and the big task of amalgamation has been accomplished.

Promotion will be given by examination and for aeronautical merit.

Airship officers can only attain the rank of Lieutenant-Colonel. In order to reach the highest ranks, the aeroplane pilot's certificate is necessary.

Very generous dispositions have been taken to grant a special insurance premium to the families of deceased aviators which are entitled to the war pension.

Every care will be taken to increase the safety of flying. [Here are certain points of considerable interest. It is obviously right that those who are only airship officers should not be considered competent to command large numbers of aeroplanes. Naturally they cannot have the required knowledge.

The scheme for providing special insurance premiums for families of deceased aviators is excellent and one which might well be investigated by our Air Ministry.]

THE STRENGTH OF THE REGIA AERONAUTICA.

On July 1, 1927, 1,100 aircraft will be in the first line.

If, as it is hoped, extraordinary credits of 450 millions of lire will be granted for this year and the following, at July 1, 1930, the Regia Aeronautica will be equipped with: 865 bombing aeroplanes, 1,250 single-seat fighters, 682 observation aeroplanes. That is to say a total of 2,797 machines.

[This statement as to the first line strength of the Regia Aeronautica is of considerable interest. If the figure is actually reached by July 1 this year Italy will probably be the strongest Power in the air so far as equipment is concerned. And even if it is not quite reached the Italian Government will deserve great credit for having made truly remarkable progress.]

THE BUILDER OF THE BARRIER.

This article must not be closed without a few words about the remarkable man who is responsible for the building of Italy's Air Power.

Signor Italo Balbo is officially *Sottosegretario dell'Aeronautica*, or Under-Secretary of State for Aeronautics. He is also a Lieutenant General of the *Milizia Nazionale*.

This Force is a peculiar and novel feature of the Italian Army, as was explained by Comendatore Luigi Villari, M.C. of the Italian Army, in a very interesting lecture which I delivered to the Royal United Service Institute on November 3, 1926, on "Italy's Aspirations In The Mediterranean."

Comendatore Villari said that this Force had its origin in the irregular Fascist Army which crushed the Communist danger in Italy. The members of this Militia are volunteers liable to be called upon only when necessary, but it is officered almost entirely by officers of the regular Army who served with distinction in the War 1915-18. The total strength of the Militia is about 190,000 men, and in war it would be automatically incorporated in the regular Army.

The Italian Secretary for Air is Signor Mussolini himself, so, as Under-Secretary, Signor Balbo acts practically as Minister for Air, and has greater authority than Under-Secretaries usually have.

He is an intimate friend of Signor Mussolini. In October, 1922, he took part in the famous Fascist march on Rome and was one of the *Quadrumvirate*, or "Big Four," who directed the Black Shirts in their attack on the capital, then in the hands of the Communists. Signor Balbo is not himself a pilot, but he is very keen on flying and misses no opportunity of being in the air.

Quite recently, in the course of an inspection of the Regia Aeronautica in the Mediterranean Area, he flew from Rome across the South of Greece to the Island of Leros and thence to Rhodes, the Italian islands off the coast of Asia Minor. Thence he flew across the Mediterranean to Tobruk, in Tripoli, and flew out to the advanced desert post of Giarabub, and back to Tobruk. Thence he flew to Benghazi, whence he inspected another desert post at Aghedabia, and back to Benghazi. Thence he flew to Tripoli itself, whence he made an out-and-back flight to Ghadames. And after that he flew across the Mediterranean by way of Sicily to Rome, on May 7, covering in all 4,300 miles in nine days. The greater part of the distance was covered by seaplane.

In the days of one's childhood about the first Latin sentence one learned was "*Balbus murum aedificat*." Apparently the habit of building defences has continued in the descendants of that classical Balbus, and one hopes that the air wall which Signor Balbo is building round Italy to-day may become as immortal as that wall which the original Balbus started building when the Latin language was invented.

So far as one's knowledge of history goes, Italy is the only Great Power in the World which we English have never fought, at any rate since the days of Julius Caesar. It is true that we have had small arguments with the Kings of Naples and the Kings of Sardinia before United Italy arose from the wreckage of the great Roman Empire. But we have fought side by side with the Italians in many wars. And in time of peace multitudes of English people have spent many happy days in Italy.

May our peaceful dealings with that great Nation long continue, and may we, when the time comes, be ready again to fight side by side with the people to whose ancestors we owe the best of our laws and the best of our civilisation.

C. G. G.

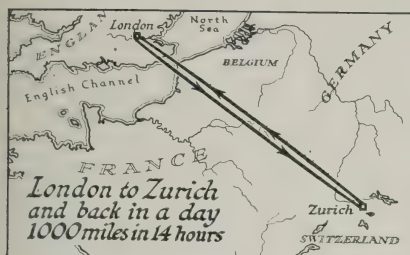
THE AVIATION BALL.

The following is a further list of patrons of the Ball which is to be held on June 30 at the May Fair Hotel in aid of the National Fund for the Promotion of Aeronautics:—

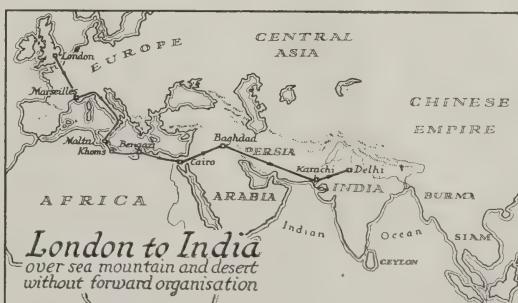
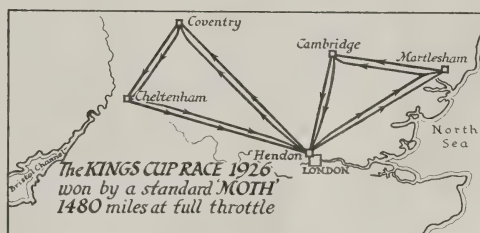
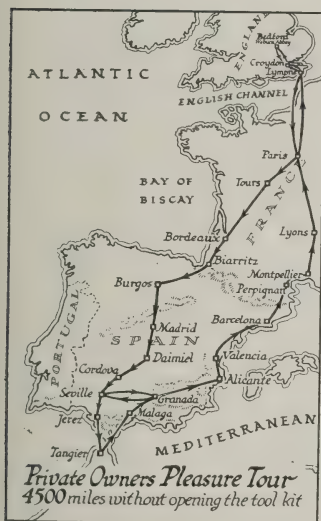
The Right Hon. Sir Samuel J. G. Hoare, Bart., C.M.G., M.P. (Secretary of State for Air) and The Lady Maud Hoare; H.G. The Duchess of Bedford; The Hon. Sir James Parr, K.C.M.G. (High Commissioner for New Zealand); The Right Hon. The Earl of Birkenhead; The Earl Fitzwilliam; The Earl and Countess of Craven; Brig.-Gen. Lord Thomson, C.B.E., D.S.O.; The Lord and Lady Morris; The Lord and Lady Strathpey; The Countess of Clancarty; The Countess of Westmorland; Rosalie Countess of Cork and Orrery; The Lord Riddell; The Hon. Lady Bailey; The Hon. Lady Chichester; The Hon. Mrs. John Russell; Sir Robert Hadfield, Bart.; Lieut.-Gen. Sir William and Lady Pitt-Rivers-Campbell; Sir Frederick and Lady Lewis; Lady Hulse; Sir Harry Britain; Sir Stanford London; Sir William Rayner; Sir John and Lady Latta; F. G. L. Bertram, Esq., C.B.E.; Lieut.-Col. J. T. C. Moore-Brabazon, M.C., M.P.; Capt. Peter Macdonald, M.P.; Col. G. E. Stanley Smith, D.S.O.; Capt. G. Garro-Jones, M.P.; Capt. Victor Gordon, C.M.G. (High Commissioner of Newfoundland); Lieut.-Col. Robert Loraine, D.S.O., M.C.; Mrs. Walter Johnson; Mrs. Seymour Chalk.

Tickets, price £2 2s. each, including Aviation Supper, may be obtained from the Honorary Organiser: Mrs. Ida Lendrum, Welbeck House, W.1., or from the Secretary of The National Fund for the Promotion of Aeronautics, 34, Broadway, Westminster, S.W.1.

The MOTH *has an unequalled record of achievement*



1,000,000
miles of Experience



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE ROYAL AIR FORCE.

The London Gazette.

May 24.

GENERAL DUTIES BRANCH.—G. P. Macdonald is granted a S.S. comm. as a Flg. Off. with effect from and with seniority of May 9; Plt. Off. R. Costa is promoted to the rank of Flg. Off. (Apr. 29); Plt. Off. on probation H. C. Kelly is confirmed in rank (May 4).

Sq. Ldr. W. G. Sitwell, D.S.C., is placed on the retired list on account of ill-health, and is granted permission to retain the rank of Wing Cdr. (May 25).

The following Flg. Offs. are transferred to the Reserve, Class C, on the dates indicated:—A. W. Cress (May 25); F. B. Young (May 26).

Flg. Off. R. H. S. Teek (Lt., R.M.) relinquishes his temp. comm. on return to Royal Marine duty (May 4).

STORES BRANCH.—Plt. Off. E. J. Fishenden is promoted to the rank of Flg. Off. (May 10).

MEDICAL BRANCH.—Flt. Lt. C. G. J. Nicolls, M.B., is granted a perm. comm. in this rank (May 25); Flg. Off. P. D. Barling, M.B., is promoted to the rank of Flt. Lt. (May 25).

MEMORANDUM.—Flg. Off. J. M. Morris relinquishes his temp. comm. on ceasing to be employed as a Flg. Off. (Works and Buildings Directorate) (Apr. 18).

RESERVE OF AIR FORCE OFFICERS.—H. Spooner is granted a comm. in the General Duties Branch, Class A.A., as a Plt. Off. on probation (May 9); Flg. Off. F. J. E. Feeny, D.S.O., is transferred from Class C to Class A (May 6); Flg. Off. H. G. Harper is transferred from Class A to Class C (Apr. 9); Flg. Off. G. P. Macdonald resigns his comm. (May 9).

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—No. 602 CITY OF GLASGOW (BOATING) SQUADRON.—Sq. Ldr. J. D. Latta, M.C., resigns his comm. (May 6). To be Sq. Ldr. J. Fullerton, to command the Sqdn. (May 6).

Appointments.

Week ending May 30.

GENERAL DUTIES BRANCH.—Group Captain H. M. Cave-Browne-Cave, D.S.O., D.F.C., to Far East Flight, Felixstowe, to command, 17/5. Wing Commander E. R. C. Nanson, D.S.C., A.F.C., to R.A.F. Base and Stores Depot, Iraq, to command, 1/5.

Squadron Leaders G. E. Livock, D.F.C., to Far East Flight, Felixstowe, 17/5. C. I. Scott, D.S.C., to M.A.E.E., Felixstowe, 9/5.

Flight Lieutenants J. C. M. Hay, to R.A.F. Base, Calshot, 27/5. P. E. Matland, A.F.C., S. T. Freeman, M.B.E., D. V. Carnegie, A.F.C., C. G. Wiglesworth, A.F.C., and H. G. Sawyer, A.F.C., to Far East Flight, Felixstowe, 17/5. R. E. G. Fullames, M.C., to No. 1 School of T.T. (Apprentices), Halton, 23/5. H. Hackney, to No. 480 Flight, Calshot, 2/5. W. E. Staton, M.C., D.F.C., to R.A.F. Base, Calshot, 11/5.

Flying Officers L. B. McGovern, to No. 24 Sqdn., Northolt, 3/5. G. P. Macdonald, to No. 24 Sqdn., Northolt, on appointment to a S.S. Comm., 9/5. B. Chesman, M.B.E., S. D. Scott and G. E. Nicholls, to Far East Flight, Felixstowe, 17/5. F. F. Inglis, to R.A.F. Depot, Uxbridge, 11/4. (Hon. Flt. Lt.) L. P. Winters, to R.A.F. Depot, Uxbridge, 12/5. B. B. Dowling, to No. 4 Sqdn., S. Farnborough, 20/4.

Pilot Officers W. G. Abrams, C. E. Chilton and R. S. Darbishire, to M.A.E.E., Felixstowe, 17/5. W. H. Shorter, to No. 13 Sqdn., Andover, 20/4. T. B. Byrne, to No. 1 Sqdn., Tangmere, 20/4. W. J. Pickard, to No. 13 Sqdn., Andover, 20/4. C. R. McEvoy, to No. 16 Sqdn., Old Sarum, 20/4. H. H. Martin, to School of T.T. (Men), Manston, 20/4. B. M. Cary, to No. 16 Sqdn., Old Sarum, 20/4.

MEDICAL BRANCH.—Squadron Leader J. T. T. Forbes, to H.Q., Coastal Area, 1/6.

Flying Officer (Q-Master Medical) F. W. Goodread, to R.A.F. Combined Hospital, Iraq, 4/5.

STORES BRANCH.—Squadron Leader W. Thorne, to H.Q., Wessex Bombing Area, Andover, 25/5.

Flying Officers H. Sleight, to Station H.Q., Spittlegate, 3/5. A. J. Redman, D.F.C., to R.A.F. Base, Gosport, 20/5.

The King's Levee.

His Majesty the King held a Levee at St. James' Palace on May 30.

Among those in attendance upon His Majesty was Air Marshal Sir John Salmond, Principal Air Aide-de-Camp.

Among those also present was Group Capt. R. P. Ross-Aide-de-Camp in Waiting.

The General Company included the Secretary of State for Air, and Wing Cdr. James Bowen.

The following officers of the R.A.F. were presented to His Majesty by the Secretary of State for Air:—

Blount, Wing Cdr. C. O.B.E., M.C., on promotion. Bottomley, Sq. Ldr. N., A.F.C. Briggs, Group Capt. E., D.S.O., O.B.E., on promotion. Burge, Sq. Ldr. C., O.B.E., Costello, Sq. Ldr. J., M.C., on promotion. Dowding, Air Commodore H., C.M.G., on appointment as Director of Training, Air Ministry. Riversdale-Elliott, Sq. Ldr. K., Goul. Sq. Ldr. L., M.C., Guilfoyle, Sq. Ldr. W., O.B.E., M.C., Jones, Sq. Ldr. H. W. G., M.C., Keane, Sq. Ldr. P., Longmore, Air Commodore A. C.B., D.S.O., on appointment as Director of Equipment, Air Ministry. Nicholas, Sq. Ldr. C., D.F.C., A.F.C., Reason, Sq. Ldr. W. Smith, Wing Cdr. S. W., O.B.E., Sparling, Wing Cdr. E., A.F.C.

The Sassoon Cup.

The final race for the Challenge Cup presented by Sir Philip Sassoon, Under-Secretary of State for Air, was held over a course of 109 miles, starting and ending at Northolt on May 26.

The Cup has been presented by Sir Philip Sassoon for competition between the Fighter Squadrons of the Air Defence of Great Britain, R.A.F. The eliminating trials are held by the Squadrons themselves and each Squadron sends on machine and pilot to compete in the Final.

The machines are standard Service types.

The Squadrons represented in the Final were:—No. 1 (Upavon), Hawker Woodcock, Flg. Off. P. Cranswick, M.C. No. 17 (Upavon), Hawker Woodcock, Flt. Lt. F. L. Pearce No. 19 (Duxford), Gloster Grebe, Flg. Off. P. Grey, N. 23 (Kenley), Gloster Gamecock, Flg. Off. A. W. B. McDonald No. 25 (Hawkinge), Gloster Grebe, Flg. Off. L. E. Maynard No. 29 (Duxford), Gloster Grebe, Flg. Off. W. A. Tattersall No. 32 (Kenley), Gloster Gamecock, Flg. Off. A. H. Montgomery, No. 41 (Northolt), Siddeley Siskin, Flg. Off. H. J. Andrews, No. 43 (Tangmere), Gloster Gamecock, Flt. Lt. A. C. Collier.

The course was Northolt, Duxford, Halton and Northolt and except for the start and finish pilots had to fly at 2,000 ft.

The race was a handicap, the Woodcocks starting first, then the Siskin, then the Grebes, with the Gamecocks on the scratch mark.

The handicapping was excellent and all the machines finished in a bunch.

The winning Squadron was No. 32, with No. 43 second No. 23 third, No. 41 fourth and No. 3 fifth. The first three machines were Gamecocks (450 Bristol Jupiter engines), the fourth a Siskin and the fifth a Hawker Woodcock. The winning machine averaged 156 m.p.h. over the course.

The other Fighter Squadrons in the Command which were not competing are No. 1 Squadron, which is not yet equipped since its return from Hinaidi; No. 56 Squadron, which is stationed at Biggin Hill; and No. 111 Squadron stationed at Duxford.

The Service Flying-Boat Cruise.

The Service Flying-Boat cruise, to which reference has already been made in THE AEROPLANE, will start next October.

The expedition will be under the command of Group Capt. L. M. Cave-Browne-Cave, D.S.O., D.F.C., R.A.F., and Sq.

THE SASSOON CUP.—Sir Philip Sassoon, Under-Secretary of State for Air (in plain clothes), talking to Flg. Off. A. H. Montgomery, of 32 (Fighter) Squadron (in overalls), winner of the Cup presented by Sir Philip for competition between Fighter Squadrons of the Air Defence of Great Britain. Air Marshal Sir John Salmond, Commanding the Air Defence of Great Britain, may be seen in profile,—the second figure on the left. The machine is a Gloster Gamecock (Bristol Jupiter).



ANOTHER *Bristol* TRIUMPH

In the final race for the
CHALLENGE CUP

(Presented by Sir Philip Sassoon, M.P.)
flown over a 100-mile course
from Northolt Aerodrome, on
May 27th, 1927, in which single
seater fighters from Royal Air
Force Squadrons competed,
the three winners were
Gloster Gamecock machines,
which started from scratch,
engined with the

JUPITER FIRST

(Flying-Officer A. H. MONTGOMERY, No. 32 Squadron, Kenley. Average Speed 156 m.p.h.)

SECOND

(Flight-Lieutenant A. C. COLLIER, No. 43 Squadron, Tangmere.)

THIRD

(Flying-Officer A. W. D. MACDONALD, No. 23 Squadron, Kenley.)

THE FIFTH MACHINE WAS ALSO POWERED
WITH A JUPITER.

THE BRISTOL AEROPLANE CO., LTD., FILTON—BRISTOL.

Ldr. G. E. Livock, D.F.C., R.A.F., at present commanding the Flying Boat Development Flight at Felixstowe, will be second in command.

Other personnel of the Far East Flight as shown in the Appointments List for the week ending May 30, are Flt. Lts. P. B. Maitland, A.F.C., S. T. Freeman, M.B.E., D. V. Carnegie, A.F.C., C. G. Wigglesworth, A.F.C., and H. G. Sawyer, A.F.C.; and Flt. Offs. B. Cheesman, M.B.E., S. D. Scott, and G. E. Nicholletts.

The Flight will be equipped with four Supermarine Southampton flying-boats with metal hulls. They are fitted with two Napier Lion engines. Two reserve machines will be based at Singapore.

The "Far East Flight" will fly down the west coast of France and across the Garonne country to the Mediterranean. From Egypt it will follow the air mail route to Karachi. From Karachi it will fly down the west coast of India to Colombo and up the east coast to Calcutta.

After Calcutta it will visit Burma and Rangoon, and then fly to Singapore. Thence they will go to Port Darwin and probably round the coast of Australia and back to Singapore. At the end of the cruise they will be based on Singapore.

The Service Flight towards the East.

An Air Ministry communiqué, dated May 27, states:—

Through the courtesy of the Anglo-Persian Oil Company, a message has been received from Flight Lieutenants Carr and Gillman to the effect that they were forced to descend owing to some technical failure, the definite cause of which the Air Ministry is unable to ascertain until the officers have returned to England and made their report.

S.S. *Donax*, which conveyed the officers to Abadan and also rendered all possible assistance, is the property of the Anglo-Persian Oil Company, who have issued instructions to their shipping in the Persian Gulf to endeavour to save the aeroplane.

The Times Correspondent at Basrah, in a message dated May 25, states:—

Flt. Lt. Carr and Flt. Lt. Gillman have arrived at Abadan, at the head of the Persian Gulf, in the steamer *Donax*, to which they were transferred from the lighthouse at Quoin Island after their rescue from the sea.

Capt. Armfield, of the *Donax*, said that as his vessel was entering the Persian Gulf and was about four miles from Quoin Island signals were seen flying from the lighthouse mast. He saw that they were distress signals and sent a boat ashore. The two airmen returned in the boat and asked for a passage to Abadan. The oil tanker *British Motorist*, which is now in the Gulf, passed the wrecked aeroplane, but was unable to save it. An Arab dhow also tried to save the machine, but failed owing to the strength of the current.

It is believed that the breakdown of the machine was due to the unexpectedly severe buffeting which it received in a storm on the first night of the flight.

A wireless message was received at Baghdad on May 30 from the Anglo-Persian Oil Company's oil tanker *British Rose* stating that it had saved the Hawker Horsley machine in the Persian Gulf. The port wings and airscrew are said to be missing. The Company has telegraphed an offer to the Air Ministry to ship the machine to London by tanker.

The following telegram has been received by THE AEROPLANE from Rolls-Royce, Ltd.:—

"Some Press reports of Carr and Gillman's recent long flight suggested failure due to engine trouble, but Air Ministry's latest report states definite cause of technical trouble unknown stop there are many possible causes in no way connected with the engines stop for the credit of British engines constructors hope you will make this fact clear if you publish anything further concerning this flight.—Basil Johnson, Rolls Royce Limited."

The R.A.F. at the Royal Tournament.

Fencing:—The épée championship of the R.A.F. was won on May 26 by Flt. Off. J. D. I. Hardman, D.F.C.

The foil championship of the R.A.F. was won on May 24 by Cpl. W. R. Hancock.

Among the Cadets, Flt. Cadet G. N. E. Tindal-Carill-Worsley, R.A.F., was the winner and style-medallist in the sabre-v-sabre contests.

The R.A.F. Dinner Club.

The attention of Serving Officers and Retired Officers of the Royal Air Force is directed to the following:—

The R.A.F. Dinner Club was formed in 1923 to provide an annual reunion for past and present officers of the Royal Air Force (including the Royal Naval Air Service and the Royal Flying Corps).

The date selected for the annual dinner is the eve of the Royal Air Force Display, as being a time when a greater number of past and present members of the Royal Air Force is collected in or near London than at any other time in the year.

When the Dinner Club was originally formed it was realised that the annual unit dinners would gradually find a difficulty in obtaining a reasonable muster, partly due to a natural loss of interest as the war receded, partly to the inevitable processes of time, and partly to the fact that many, having served during the war with more than one unit, were unwilling to tie themselves down to attending the dinner of any one unit at the expense of the others.

The Secretaries of unit dinners, particularly those who are

experiencing difficulty in collecting a reasonable number of diners, or who have had to abandon their annual dinners owing to lack of support, should get in touch with the Secretary of the R.A.F. Dinner Club, Bentley Priory, Stanmore, Middlesex.

(Signed) C. LONGCROFT, Air Vice-Marshal, Chairman, R.A.F. Dinner Club Committee.

[As one of those who had the honour of helping Group Captain Christie and the late Sq. Ldr. Vivian Robeson to form the R.A.F. Dinner Club, one hopes that not only Unit Secretaries but officers unattached to any unit organisation will get in touch with the Secretary of the Club at Bentley Priory and will help to make the dinner a real re-union of past and present officers of the Royal Air Force.—C. G. G.]

The Middle East Dinner.

Officers who served with the Forces in the Middle East during the War are reminded that the Annual Dinner will take place on Thursday (to-day or to-morrow, according to when THE AEROPLANE arrives) June 2, at the Trocadero, Shaftesbury Avenue, at 7.30 for 8 p.m.

Eleventh-hour application for tickets may be made to Brig.-Gen. Caddell, Vickers House, Broadway, S.W.1.—Telephone Victoria 6900.

A CONGO—NILE AIR ROUTE.

It has been reported in *The Times* that a representative of the Kisumu-Khartum air line who has returned from a visit to the Belgian Congo, states that a provisional agreement has been made with the management of the Kilo Moto mines that all gold produced by those mines should be sent by air. Encouragement will also be given to the employees of the mines to travel homeward by air, with a guaranteed minimum of 40 passengers annually, provided the agreement is ratified at Brussels. If the Congo Government is unable to agree to the official use of the air mail the mines will send a private bag.

An extension of the Congo air lines to Rejaf to connect with the Kisumu-Khartum route is under consideration.



THE THIRD TIME.—L.A.C. S. Ferris, R.A.F., and "The Sporting Life" Marathon Trophy, which he won for the third year in succession on May 28. The race is over a distance of 26 miles, 385 yards and L.A.C. Ferris' time this year was 2 hours 40 minutes 32.15 seconds. His time last year was 2 hours 42 minutes and 24.15 seconds, and in 1925 it was 2 hours 35 minutes 58.15 seconds. L.A.C. Ferris took the lead after 15 miles and finished nearly 5 minutes ahead of the second man, S. Natale (Italy), and 9 minutes ahead of the third man, J. Marien (Belgium).

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CAPTAIN LINDBERGH ARRIVES.

On Sunday afternoon, May 29, Capt. Charles Lindbergh in the Ryan monoplane (Wright Whirlwind engine) in which he flew from New York to Paris, landed on Croydon Aerodrome,—but only just. He very nearly landed on some hundreds of congenial idiots who, even before he appeared, had crowded onto the Aerodrome in defiance of warnings that aeroplanes must have room to land.

Unfortunately he missed them all and managed to get down on clear ground. If he had killed a few nobody would have been sorry unless the machine had been damaged.

The arrangements for handling the crowd were not bad. Before a thing can be either bad or good it must exist. And no arrangements of any kind did exist. Flimsy stick-and-wire barriers were put along one side of the Aerodrome. But anybody could walk over them or push them down.

The Civil Authorities at Croydon supplied seventy policemen who, recognising their helplessness, were perfectly amiable and perfectly useless till they were called upon to batter a way through the crowd for the car which conveyed Capt. Lindbergh from his machine to the Control Tower and then they were very good indeed. The crowd were utterly out of control and behaved just like a lot of foreigners.

Of course nobody was really to blame. It was not the affair of the Royal Air Force, so the R.A.F. had no excuse for doing the only thing that really could have been done to keep the crowd in hand, namely, to have turned out the whole personnel of Kenley and Northolt to hold the crowd back. In a way it was the affair of the Department of Civil Aviation because that Department theoretically controls Croydon Aerodrome. But the Department of Civil Aviation has no personnel with which to deal with a crowd. And it was not the affair of the Royal Aero Club, because, although the Club were primarily responsible for inviting Capt. Lindbergh to Croydon, the Aero Club is unaccustomed of late years to handling any crowd consisting of more than an old lady and two small children at its own meetings.

Despite lack of control one would have expected ordinary fairly sane people who were capable of reading the newspaper announcements of Capt. Lindbergh's arrival to have had sufficient intelligence to understand that aeroplanes must have ground on which to alight. But presumably they all belonged to the class for whom the late Lord Northcliffe was alleged to have catered,—those who can read but cannot think.

However, fortunately in one way and unfortunately in another, nobody was killed, so the whole thing must simply be passed over as a joke, though for a time things looked rather grim.

How many people came to see the arrival one can only guess. There were probably 50,000 or 60,000 actually on the aerodrome itself. Apart from that, the sensible people who stayed in the enclosures, and the people who were packed on the Brighton Road and along Plough Lane and the Waddon Road and everywhere else within sight, must have brought the number up to a couple of hundred thousand. Sir Alan Cobham said afterwards to a friend that the crowd was quite as large as that which greeted him on his arrival at Melbourne, but that it was not as violent as the Australian crowd. Which rather looks as if the people of London at any rate are becoming air-minded, though of course it may have been merely a species of mob hysteria induced by the newspapers.

BEFORE THE ARRIVAL.

An hour or so before Capt. Lindbergh was due a whole

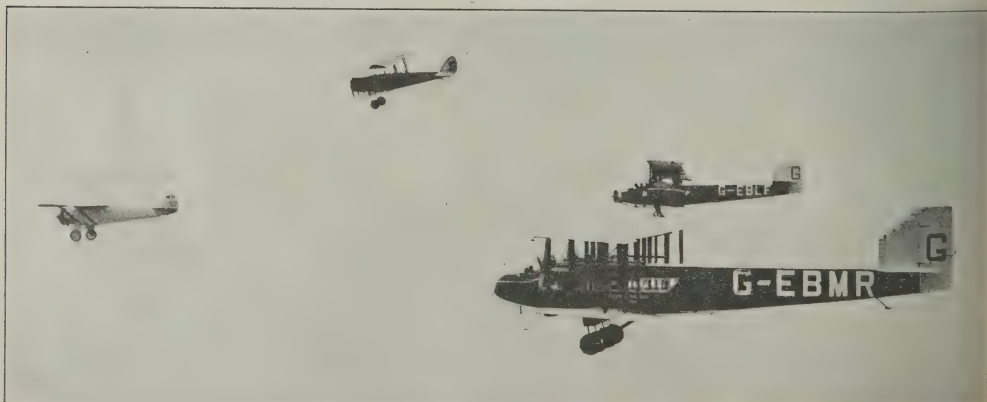


THE APPROACH.—Captain Lindbergh coming in over the "Wind-stocking" at Croydon.

flock of machines started off to meet him on the recognised air route from the Straits of Dover, among them four Handley Pages of the kind described in most newspapers as "giant air liners," but transformed for the occasion by *The Morning Post* into "a stately escort of giant Royal Air Force bombing machines." Apart from the fact that our possession of a giant Royal Air Force is news, the machines were in fact four of the fleet of Imperial Airways Ltd., each chartered by opulent parties to see the fun from aloft. They must have got rather more fun than they expected when they found themselves apparently about to land on or in the mob.

Instead of following the regulation air route from Brussels along the coast by Dunkirk to Calais and so across to Dover Capt. Lindbergh left the Belgian coast at Nieuport on a compass-course for the mouth of the Thames, and actually arrived at the British coast somewhere over Margate.

This course does not strike one as being particularly clever. It is all very well for a man to take one colossal risk for 36 hours in order to achieve and acquire all that Capt. Lindbergh has. But having done it there seems no need to take the risk of flying somewhere about eighty miles over open sea when only twenty miles are necessary. Also there seems little use in flying straight up the Thames where



THE ESCORT.—Captain Charles Lindbergh approaching Croydon on the Ryan Monoplane (Wright Whirlwind) with Mr. McIntosh on a D.H.50 on his tail and the escorting Handley Pages.

ROLLS-ROYCE

Eight years ago Rolls-Royce Aero Engines achieved the first direct flight (in a Vickers-Vimy Aeroplane) across the Atlantic Ocean. Since then Rolls-Royce Aero Engines have flown successfully from England to India, Africa, and Australia, and across the South Atlantic.

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there is no decent landing ground when he might have followed the recognised air route with perfectly good landing ground all the way.

Evidently Capt. Lindbergh is not quite so cautious and level-headed as one thought he was. It must be remembered that his engine had already done the Atlantic crossing and the flight from Paris to Brussels without overhaul, and had been heated-up and allowed to cool again several times, so there was more chance of its letting him down on the trip to London than on the Atlantic flight.

From Margate he flew straight up the Thames right through London to somewhere about the longitude of Wandsworth Bridge and came in from the North-West of the aerodrome instead of from the East. Thus the escort of welcome would have missed him altogether but for the fact that Mr. R. H. McIntosh, on a D.H.50 belonging to Imperial Airways, equipped with wireless, had left Brussels at the same time as Capt. Lindbergh and sent messages to the other machines telling them of his course.

THE CONQUERING HERO COMES.

As one has already remarked, the crowd were well into the aerodrome before the machines even hove in sight. When they arrived there were eight or ten machines in a bunch, Capt. Lindbergh leading with Mr. McIntosh sitting on his tail, Mr. Neville Stack on a photographic D.H.9 just above, and the Handley Pages spread out on either side, with Mr. Hope's D.H.50, sundry Avros and lots of Moths and things all over the sky.

He evidently got the general lie of the aerodrome at sight, for he swooped down along what should have been the front line of the crowd, in front of which was the official party of welcome consisting of the American Ambassador and the American Air Attachés and the Swedish Minister and Sir Samuel Hoare and various other official people.

With them the official party had an enormous American flag which lay on the ground awaiting the arrival. The agglomeration of top hats and uniforms and the flag on the ground rather suggested a burial party. Fortunately the only thing of that sort that happened was when the unfortunate official party was completely buried by the crowd as it surged over the aerodrome. It went down gallantly with the American flag waving over it.

Having done his dive along the crowd Lindbergh zoomed up and flew round the aerodrome, followed by his escort, to make his proper landing. By that time the crowd from the lower end of the ground by the A.D.C. Aircraft Works and from the new aerodrome buildings on the East side had come forward like a tidal wave, and when Lindbergh came round to the place where he should have landed the crowd were all over it, so again he went up.

This time Mr. Robinson, piloting one of the Handley Pages, seeing what was about to happen and believing in the maxim that one should go while the going is good, put his machine down well up at the top of the aerodrome.

The third time Lindbergh came round there was just enough room for him to get down, which he did quite neatly. And as he taxied up to the top of the aerodrome, right away

from the official party, the whole mob broke loose from all the enclosures, headed by the privileged persons who were admitted with special passes to the Customs area and had been particularly requested officially to keep their line and set a good example to the rest.

In some way or another a certain number of the regular aviation people fought their way through to the machine and held the crowd off it by sheer strength of arm and fist. One of the defenders lost a couple of teeth, but he felt satisfied that the balance was in his favour as the result of the scrap. Lindbergh very wisely stopped inside the machine, or he would probably have been torn into souvenirs.

Eventually a much battered car with Aero Club officials and police arrived, extricated him from the machine, and ploughed its way to the control tower, with Mr. Perrin and his megaphone mounted on the bonnet like a mascot. There Lindbergh mounted the ladder and showed himself to the crowd, looking rather like a Royalist on the platform of a guillotine during the French Revolution. When he descended after a sufficient exhibition, some hooligan tried to grab his flying cap off his head for a souvenir, and only succeeded in scratching Lindbergh's neck. Whereupon Lindbergh promptly hit him hard in the jaw. A very good piece of work. It is a pity there was not more of it.

Thereafter Lindbergh was got into a car and transported to the American Embassy, where the usual newspaper interviews took place. (*Vide* daily press for heart interest and sob-stuff.)

THE BAULKED ESCORT.

The really exciting part of the show was the landing of the escorting machines. Mr. McIntosh, as wily as ever, saw that there was a clear patch between Plough Lane and the Aerodrome proper at the back of the Hotel and its buildings. Machines sometimes go up into that corner to get a long run against a North-East wind. So as there was practically no wind at all he just came down low over Plough Lane and dropped in there.

A Moth and Mr. Hope on his D.H. 50 landed on the old Aerodrome on the opposite side of the road. But as people were straggling about in that field it was not safe for the big machines to land there. So the other Handley Pages and things just flew round till the mob had packed itself so tightly round Lindbergh's machine that there was an open space between them and the new aerodrome buildings and the A.D.C. sheds, and put themselves down there.

GETTING THEIR OWN BACK.

Actually one of the best bits of work of the afternoon was done by the pilot of the Farman Goliath *Arlois* belonging to the Air Union. He came in just before Lindbergh was expected, and, presumably wishing not to spoil the show or get in the way, he went off out of the aerodrome again without landing, evidently intending to land after the escort. Which was a very pleasing example of courtesy.

When he did come in again the mob were all over the ground, so he did two or more circuits each time flying the whole length of the aerodrome about 6 feet over the heads of the crowd, and, judging by his gesticulations, telling



THE LANDING.—Captain Lindbergh landing just in front of the mob which invaded the aerodrome.

THE WESTLAND WIDGEON



THE OUTSTANDING BRITISH LIGHT MONOPLANE.

The Flight of Captain Charles Lindbergh from New York to Paris is the supreme vindication of the merits of the monoplane. Added interest is therefore given to this description of Britain's outstanding light monoplane which has one notable advantage over Captain Lindbergh's machine—the pilot's view is unimpeded.

THE Widgeon III is a very strongly built and substantial light aeroplane and it is particularly suitable for real hard work. The machine carries passenger, pilot and about 50 lbs. of luggage. The engine is the well-known Cirrus Mark II, or the Armstrong-Siddeley "Genet." Being a parasol monoplane there is a most excellent view for both pilot and passenger in a downward direction, making the machine ideal for patrol or survey work.

In addition the wings are braced with struts and consequently there is no chance whatever of the rigging getting out of true and needing skilled attention. The passenger's entrance is through a door in the side of the fuselage and he has a very roomy cockpit.

The aeroplane can be supplied with dual control. The machine is economical to run, the petrol consumption being approximately 20 miles per gallon, and the oil consumption is about one pint per hour. The overall dimensions of the machine when folded are only 8 ft. 6 ins. high, 10 ft. 6 ins. wide, and 23 ft. 1 in. long.

ENQUIRIES
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All machines are furnished with an aerobatic certificate of Airworthiness for a total weight of 1,400 lbs. which allows for passenger, pilot and luggage, while the total weight can be increased to 1,600 lbs. without exceeding the permissible load for normal factor of safety.

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them exactly what he thought of them. The third time round he found a clear space, made a perfect landing, and then ploughed through the crowd up to the Customs enclosure, blowing the crowd to bits with his slipstreams.

Most of the pilots when they landed discovered that by wheeling suddenly they could blow masses of smoke and clouds of dust into the crowd, which they proceeded to do with considerable joy to themselves and with excellent effect in clearing the aerodrome. The result was like a very big gas attack and was distinctly efficacious.

THE FINISH.

While all this was going on the Ryan monoplane was rescued from the clutches of the crowd and was hauled right across the aerodrome to the new buildings on the other side. Fortunately people were much more interested in the man than the machine, so it was allowed to progress comparatively unhampered and so far as one can gather no damage was done to it.

The worst casualties were among the cars which endeavoured to stop the rush of the crowd and afterwards tried to get to Lindbergh's machine to protect it. The mob climbed all over them and sat on the roofs and the mudguards and so forth, with the result that most of them were stripped of their paint.

One gathers that one of them, a particularly beautiful air-cooled Franklin, was intended as a presentation to Capt. Lindbergh. It will want a bit of touching up before it is a fit present for anybody.

Considerable credit is due to Mr. Harold Perrin, the Secretary of the Aero Club, for the way in which he laboured to organise and persuade the crowd in the first place and to clear Lindbergh's path from the machine to the control tower and from the control tower to the office of Imperial Airways afterwards. But even his appeals to British good feeling and British sportsmanship failed to impress the mob.

Altogether it was a thoroughly good show so far as all the pilots were concerned and a thoroughly disgusting show of mob law. The mob consisted of men, women, and children in arms. The majority of the men and many of the women were free and independent Parliamentary voters. After seeing their behaviour, nobody can possibly object to the Flapper Vote—it cannot add to the imbecility of the Constituencies.

C. G. G.

A ROYAL HONOUR.

On May 31 His Majesty the King received Capt. Lindbergh at Buckingham Palace and conferred on him the Air Force Cross,—which as most people know is won by flying in the face of Providence, whereas the Distinguished Flying Cross is won by flying in the face of the enemy.

THE FLIGHT ROUND THE ATLANTIC.

On May 23, Colonel the Marchese de Pinedo left Trepassey Bay, Newfoundland, on the Savoia 55 *Santa Maria II* (two 500 h.p. Isotta-Fraschini engines), at 01.58 hours (Eastern time) in an attempt to fly across the North Atlantic to the Azores.

He was seen over St. John's, Newfoundland, at 02.42 hours and it was also reported that he had been sighted by a British steamer at 16.38 hours (Greenwich time) about 360 miles N.W. of the Azores.

Thereafter he met unfavourable weather and was forced to alight late in the afternoon about 150 miles W. of Fayal.

He was picked up by a Portuguese schooner and taken in tow.

On May 26 the schooner was intercepted by an Italian steamer, at a point still some 150 miles W. of Fayal, and the Marchese de Pinedo transferred to this ship.

The fate of the *Santa Maria II* is as yet unknown. Whereas one report states that it has been safely towed into Fayal harbour another states that a third Savoia 55 will be despatched to the Azores to enable the flight to be completed, which seems to indicate that some mishap has occurred to *Santa Maria II*.

THE TRANS-ATLANTIC PATH-FINDER.

As a number of strange and inaccurate rumours are in circulation, even amongst those who might reasonably be expected to know better, as to the type of direction finding instruments used by Capt. Lindbergh on his trans-Atlantic flight, it may be well to state that the "Spirit of St. Louis" is fitted with two compasses. One is of the usual magnetic type, the other, also magnetic, is a Pioneer Earth Inductor compass.

This latter type, which has certain very definite advantages over the usual type of compass, more particularly for the purpose of keeping a steady course over long distances, was fully described, for the first time on this side of the Atlantic, in *THE AEROPLANE* of Feb. 2, 1927.

CROYDON NOTES.

(Promoted from their usual place.)

Yes, thank you! Cobham Field is a little better now and is recovering from its surprise of Sunday when it suddenly came off the Secret List with a bump.

There can be little else of interest for Croydon Notes but Sunday. Deeds of valour were plenty. The last one saw of Mr. Gordon Olley was when he was objugating at a suicidally-intent crowd. He went down fighting gallantly.

When personally one screamed at the crowd and called them damned fools, a little tiny man with an enormous wife said, almost hopefully, "Were you speaking to my wife?" Words then failed one.

Unrecorded and unseen deeds of valour were done by the staff of A.D.C. Aircraft on the Stafford Road front, but, after a gallant fight, they were outnumbered, in spite of appeals for police help.

The late Mr. Thomas Babington Macauley, who was present, has promised to lay a new Lay of Ancient Croydon for one so this station is going straight over to Mr. Macauley for verse until the end of these notes. Good night everybody, good night!

HAROLDUS.

Seftonius of Branzium
By the Nine Rules he swore
That the Great British Public
Should stay outside his door.
By the Nine Rules he swore it.
The *Daily Mail* next day
Bade all their messengers ride forth
To East and West and South and North
To summon an array.

And now hath every city
Sent up her tale of men
The cars are four score thousand
The bikes are thousands ten.
Before the gates of Croydon
Is met the great array
A hot man was Seftonius
Upon this doleful day.

Just then a Scout came flying
All wild with haste and fear
"To Arms, To Arms, Sir Cato,
For Lindbergh's nearly here!"
On the low hills to Northward
The Cato fixed his eye
And saw the swarm of aircraft
Rise fast across the sky.

But the Cato's brow was sad
And the Cato's speech was loud
And darkly looked he at the fence
And darkly at the crowd
"Their van will be upon us
Before the plane can land
And if they once should break the fence
What hope to make a stand."

Then out spake brave Haroldus,
A hearty man and great,
"To every man upon this earth
Voice cometh soon or late,
And how can man yell better
Than shouting out the odds
For the basses of his fathers
And the tankards of his gods."

Then out spake Neddius Largius,
A Gros'nor proud was he,
"Lo I will stand on thy right hand
And guard the plane with thee."
And out spake Bill Lappintus,
Of Roeyian blood was he,
"I will abide on thy left hand
And keep the plane with thee."

And there stood brave Haroldus
But constant still in mind
Thrice thirty thousand foes before
And several more behind.
But then across the air-field
The Tower he espied
And taking Lindbergh on his back
He plunged into the tide.

Now sounds of rage and anguish
Was heard from every rank
For friends and foes in loud surprise
With bleeding nose and blackened eyes
Stood gazing where he sank
And when outside the Tower
They saw his head appear
Even the British Public
Could scarce forbear to cheer

It stands in the Committee Room,
Seen plainly from the Bar,
Haroldus and his megaphone
Exactly as they are.
And underneath is written
In letters all of gold
How Harold saved Lindbergh:
In the brave days of old.

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R.33 ABOUT TO ASCEND
WITH GLOSTER "GREBES."

"Flight" photograph

GLOSTER

THE GLOSTER GAMBET.



THE GLOSTER GAMBET.—A deck-landing ship's fighter fitted with a 420 h.p. Bristol Jupiter VI engine.

The Gloster Gambet is a new single-seat fighter designed and built by the Gloster Aircraft Co. of Cheltenham, for use from aircraft carriers. In general appearance it closely resembles the well-known Gamecock so widely used by the R.A.F., but it is in fact a somewhat larger machine, carrying a distinctly heavier load, and has a lower landing speed and a rather more rapid climb than the Gamecock.

WING STRUCTURE:—The Gambet is a single-bay biplane with the characteristic Gloster wing arrangement of a large upper wing of a thick section combined with a smaller and thinner section lower wing which has in effect a less angle of attack.

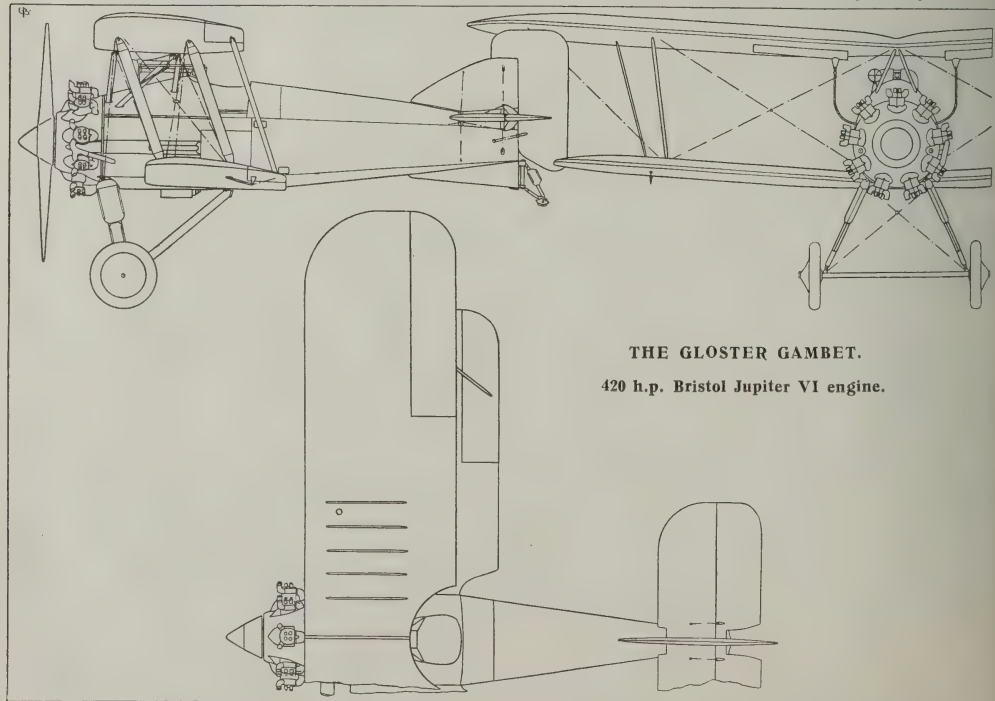
This wing structure is of the normal timber construction with spruce spars, ribs and struts, swaged steel rod internal bracing and streamline wire external bracing.

FUSELAGE:—The fuselage is built with four ash longerons,

spruce struts and swaged rod bracing. The engine, a Bristol Jupiter, Series VI, is carried on a light but extremely rigid mounting of steel, and the body of the fuselage is faired out by fabric-covered formers to carry on the lines of the engine cowl.

The pilot's cockpit is just below the line of the trailing edge of the upper wings which are recessed forward above the cockpit to facilitate entry and to give a good upward view. The seat is well up in the fuselage and the pilot has accordingly an excellent view downwards over the leading edge of the lower wing at an angle of 51° to the horizontal, and at as much as $12\frac{1}{2}^{\circ}$ downwards straight ahead over the engine cowl.

POWER PLANT:—The Jupiter engine is very fully cowled by a large conical front cowling to which are attached nine partial cylinder helmets which leave only the cylinder-heads



THE GLOSTER GAMBET.

420 h.p. Bristol Jupiter VI engine.

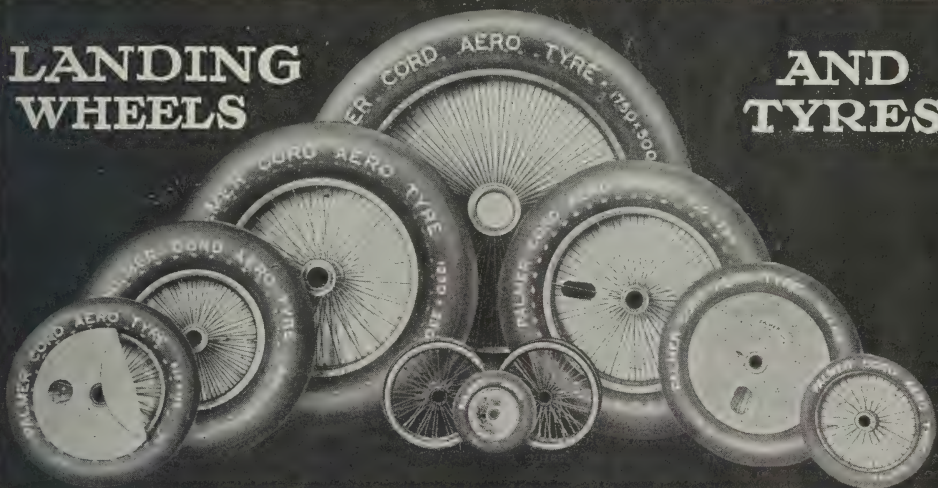


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Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore				Length	Bore				Length	Bore	
375×55	168	m/m	m/m	m/m	700×100	112	m/m	m/m	m/m	1000×150	210	m/m	m/m	m/m
300×60	16	111.12	25.4	Central	"	176	150.	38.09	Central	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	"	179	178.	44.45	Central	"	149	185.	55.	Central
"	172	130.	38.09	Central	650×125	119	178.	55.	132/46	"	155	220.	66.67	Central
575×60	21	160.	28.	Central	"	147	178.	55.	Central	"	166	185.	55.	125/60
"	180	150.	38.09	104/46	"	188	120.	34.92	Central	900×230	107	185.	55.	Central
"	186	120.	34.92	Central	750×125	77	178.	44.45	132/46	"	108	185.	55.	125/60
"	90	150.	38.09	Central	"	92	185.	55.	135/50	"	128	220.	66.67	Central
650×65	78	178.	44.45	132/46	"	95	185.	55.	Central	"	137	250.	80.	Central
"	79	178.	44.45	Central	"	99	178.	38.89	132/46	"	157	185.	80.	Central
"	100	178.	38.09	132/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
"	101	178.	31.75	132/46	"	176	178.	44.45	Central	1100×220	134	220.	66.67	Central
600×75	21	160.	28.	Central	800×150	161*	185.	55.	135/50	"	136	250.	80.	Central
"	180	150.	38.09	104/46	"	162*	185.	55.	Central	975×225	192	185.	60.32	Central
"	186	120.	34.92	Central	"	163*	185.	66.67	135/50	"	194	185.	55.	125/60
"	190	150.	38.09	Central	"	169†	185.	55.	135/50	1250×250	133	250.	80.	Central
700×75	78	178.	44.45	132/46	"	177	185.	55.	135/50	"	154	304.8	101.6	Central
"	79	178.	44.45	Central	"	183	185.	55.	Central	1500×300	115	304.8	101.6	Central
"	100	178.	38.09	132/46	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
"	101	178.	31.75	132/46	1000×150	167	185.	55.	125/60	1750×300	139	400.	152.4	Central
700×100	77	178.	44.45	132/46	"	174	250.	80.	Central	"	191	350.	150.3	Central
"	92	185.	55.	135/50	"	182	185.	55.	Central	1750×350	193	400.	125.	Central
"	95	185.	55.	Central	"	187	220.	66.67	Central					
"	99	178.	38.89	132/46	"	201	185.	60.32	125.60					

*Wheels Nos. 161, 162, 163 and 211 are of stronger type than the other wheels for 800 × 150 tyres. †Wheel No. 169 is fitted with Ball Bearings.
Grease gun equipment is now a standard fitting on all wheels.

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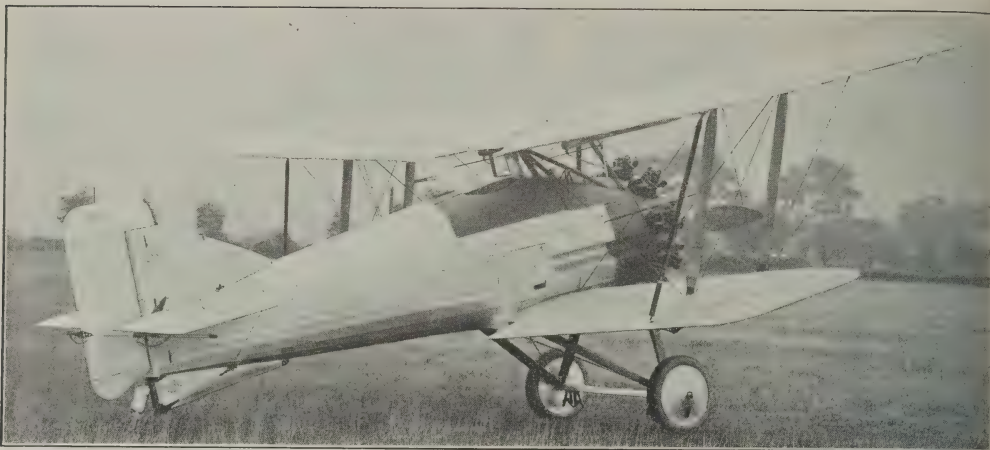
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



A SHIP-FIGHTER.—The Gambet, a high-performance single-seat deck-landing fighter produced by the Gloster Aircraft Co. Ltd.

and exhaust-ports unconcealed. The lines of the main cowling are carried on by a large conical airscrew spinner, giving the body an extremely clean entry.

The fuel, 72 gallons in all, is carried in two gravity tanks fitted one in each half of the upper wings. An oil tank of 5½ gallons capacity is carried in the coaming above the fuselage rails ahead of the cockpit.

LANDING GEAR:—The undercarriage is of the Vee type with telescopic front legs to each Vee. These telescopic legs are fitted with a combination of compression rubber springing and oleo shock-absorbers of the well-tried Gloster type.

The tail skid consists of a deformable triangular frame of steel tube hinged to the stern post of the body, and coupled up to the rudder bar and fitted with a substantial renewable steel shoe.

The main undercarriage is equipped with special streamlined deck-landing hooks.

CONTROLS:—The machine is fitted with control surfaces of ample area, and is exceedingly manœuvrable at all speeds. Ailerons are fitted to both top and bottom wings. These are connected to the control-stick through a push-and-pull rod system on the under surface of the lower wing, and the upper ailerons are coupled to the lower ailerons by one strut on each side.

The tail-plane is adjustable in the air by the usual type of screw gear. Except the rudder none of the control surfaces are balanced.

ARMAMENT:—A pair of synchronised Vickers guns are fitted,

one on each side of the seat, firing out through grooved recesses in the side of the body. In this position the guns are very readily accessible for the clearing of jams, etc.

In addition to the two Vickers guns the Gambet carries below the lower wings bomb racks for four 20-lb. bombs.

As may be seen from the appended specification the Gambet has a remarkably fine all-round performance for an aircraft of the deck-landing type.

The machine is built to the standard of strength for single-seat fighters required by the British Air Ministry and accepted by many foreign Governments. The load factor on the front wing truss is $7\frac{1}{2}$, on the rear truss $5\frac{1}{2}$, and the factor for landing loads on body and undercarriage and tail skid is 6.

SPECIFICATION.

Span (top) ... 31 ft. 10 in. (9.70 m.)	Max. speed at 5,000 ft. (1,525 m.p.h.)
Span (bottom) 26 ft. 0 in. (7.92 m.)	152 m.p.h. (245 km.p.h.)
Chord (top) ... 5 ft. 6½ in. (1.69 m.)	Max. speed at 10,000 ft. (3,050 m.p.h.)
Chord (bottom) ... 5 ft. 2½ in. (1.59 m.)	145 m.p.h. (233 km.p.h.)
Total wing area ... 284 sq. ft. (26.49 m.)	Landing speed 49 m.p.h. (79 km.p.h.)
Engine, Bristol Jupiter VI	Climb to 5,000 ft. (1,525 m.)
Weight fully loaded 420 h.p.	3 mins.
3,975 lbs. (1,397 kg.)	Climb to 10,000 ft. (3,050 m.)
Wing loading ... 10.83 lbs./sq. ft. (52.9 kg./sq. m.)	7 mins.
Power loading 7.32 lbs./h.p. (3.28 kg./h.p.)	Climb to 15,000 ft. (4,574 m.)
	11 mins.
	Ceiling 23,000 ft. (7,000 m.)
	7 mins.

PROFESSOR PRANDTL'S VORTEX THEORY.

The fifteenth Wilbur Wright Memorial Lecture, as recorded recently, was delivered to the Royal Aeronautical Society on May 16 by Prof. L. Prandtl of Göttingen University and bore the title "The Generation of Vortices in Fluids of Small Viscosity." This subject at first sight might seem to have very little bearing on practical aeronautics.

In fact vortices are generated whenever an aeroplane flies, and these vortices are the mechanism which on the one hand account for the lift of the aeroplane, and on the other hand account for the greater part of the resistance which is offered to the motion of the aeroplane. The subject of how and why these vortices are produced, and how they may be avoided or suppressed, is therefore of direct practical importance to aeronautics generally.

Prof Prandtl's paper was entirely non-mathematical. It was almost entirely descriptive of the observed behaviour of fluids in flow, and it was profusely illustrated by lantern slides and films which showed most distinctly how vortices and turbulence arise in a real fluid.

It is not possible in THE AEROPLANE to reproduce more than a selection of the lantern slides, and the films—which were by far the most illuminative feature of the evening—cannot be reproduced at all. Therefore this account of the paper can be no more than an incomplete summary, and in making that summary one has felt justified in taking certain liberties with the original text.

It is understood that the Royal Aeronautical Society will in due course publish not only the whole of the lantern slides, but also some considerable portion of the films in the Society's Journal, and those who desire fuller information are hereby referred to that Journal.

In the opening paragraphs of his paper Prof. Prandtl

expressed his appreciation of the large amount of experimental work which had been conducted in England for the verification of the Vortex theory of aerofoils. He said that it was very right that this theory should be known in this country as the Lanchester-Prandtl theory, for Lanchester had worked upon it before he (Prof. Prandtl) had done so, and had independently obtained an important part of the results.

He denied that Lanchester's work had been followed in Germany, for the ideas involved had occurred to him (Prandtl) before he had seen Lanchester's work. English scientists, he said, had been reproached because they had not appreciated Lanchester, whereas Germany had at once recognised his work. But that was because Lanchester was not easy to understand unless one was familiar with the general ideas underlying the Vortex theory. In Germany they were already familiar with these ideas when Lanchester's work first came to their knowledge, and consequently they were able to appreciate it.

Coming to the subject of the lecture proper, the attempt to establish a satisfactory theory of the motion of real fluids was faced by a very remarkable and apparently paradoxical state of affairs.

According to Lagrange's well-established theorem it was impossible for any element of a perfectly non-viscous fluid which was originally at rest to be brought into a state of rotation. Ordinary methods of reasoning would lead to the conclusion that in the case of real fluids the actual flow would more and more nearly approach that of the theoretically perfect fluid as their viscosity became smaller and smaller.

Actually this did not occur. In real fluids, even in cases where the viscous forces were as small as one-tenth-thousandth of the inertia forces, intense vortices were produced in a very short time, though, in such a case the method of reasoning above mentioned would lead one to expect a flow very similar to that of the perfect and inviscid fluid.

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Lieut. Freri demonstrating the Salvator Parachute to General Piccio and His Excellency Mussolini.

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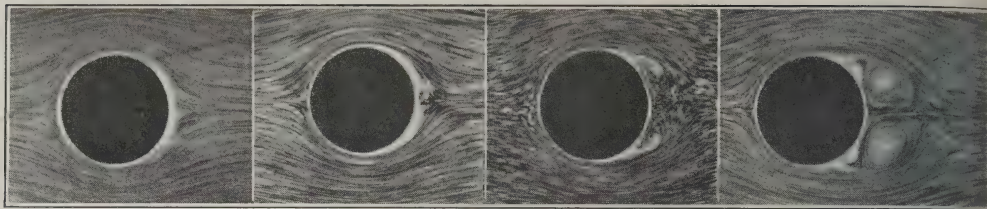
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HOW VORTICES ARE MADE.—Successive photographs showing the beginning of turbulent flow of water past a cylinder. In the left-hand photograph water has just started to flow past the cylinder from left to right. Except in the narrow white ring of fluid in contact with the cylinder, the streamlines are almost identical with those predicted by theory for a perfect fluid. But this thin "boundary layer" has already begun to thicken up at the back of the cylinder.

The next photograph shows how the fluid in the boundary layer begins to curl up into a vortex, and further stages are shown in the other two photographs. In the last it can be seen that the lower vortex has become larger than the upper one. It will eventually break away from the cylinder and go off down stream, and will be followed by a steady series of similar vortices breaking away from alternate sides of the cylinder.

The explanation of this seeming paradox is that although in such cases the viscous forces are small, their effects are concentrated within a very narrow layer of fluid upon which they are able to produce marked effects. Where a stream of fluid passing over a sharp edge of an obstacle meets another stream which has passed the other side of the same obstacle, the speeds of the two streams will usually be different.

Although no rotation or vorticity will thereby be caused in the main body of the two confluent streams intense vorticity may be and in fact is caused in a narrow layer of fluid between them.

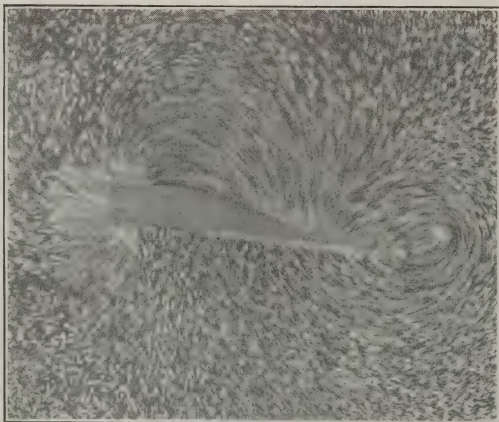
This "surface of discontinuity" or vortex sheet is unstable, and rolls itself up into a vortex, or series of vortices, and finally produces the disturbed type of flow with which everyone is familiar.

In the case of obstacles of smoothly curved form, the fluid in contact with the obstacle sticks to the surface of the body, and layers outwards from this film slip over each other until finally at a small distance from the surface of the obstacle the fluid has practically the velocity of the original stream. There is thus surrounding the body a layer—the boundary layer—which, as a result of viscous forces, is practically stagnant.

But the general flow of the stream produces a field of pressure around the body, and this stagnant boundary layer is subject to the resulting pressures. Over some part of the layer these pressures must be of type tending to accelerate the stagnant boundary layer in a direction opposed to that of the main flow. Where this pressure-gradient is sufficiently great the boundary is caused to flow backwards, and to pile up into a sort of bump. This bump projects out into the main stream and is pushed forward, curled over and set spinning in a manner which can clearly be followed in the photographs.

This phenomenon is very clearly shown in the series of photographs showing the flow of water past a cylinder. In these the streamlines of the fluid have been made visible by the presence of very finely divided particles of aluminium in the water. The experiment illustrated is started with both the water and the cylinder at rest, and as a result of surface tension aluminium particles become densely concentrated in a layer round the cylinder.

The first photograph is taken just as the water is set in motion past the cylinder. Except in the thin layer in contact with the cylinder, which is rendered conspicuous by the above mentioned concentration of aluminium particles, the flow here shown is practically identical with that which would be predicted mathematically for the flow of the perfect fluid past a cylinder.



THE CIRCULATION ROUND A WING.—In this photograph a model of aerofoil section has just started to move through water. The photograph shows a vortex which has formed at the trailing edge. This vortex is left behind by the wing. The circulatory motion round the wing itself, which accounts for the lift which it produces, may also be seen. The nose of the aerofoil is indistinct because it is moving across the picture.

But even in this photograph it can be seen that at the rear of the cylinder the "boundary layer" is beginning to be pushed against the stream and to thicken up. The succeeding photographs show how this initially minute disturbance in this thin layer builds up and leads finally to a violently turbulent flow.

Another photograph gives conclusive evidence that it is the existence of the boundary layer which causes the phenomenon of turbulence. In this is shown the flow of water through a channel of relatively narrow section which suddenly widens out to a much greater section. Under these conditions the perfect fluid would spread out smoothly as the channel widens, and the stream-lines will follow the walls of the channel. In the real fluid a jet issues from the narrow portion of the channel and the space between this jet and the walls of the wider section are filled with "dead water"—actually in violent turbulent movement.

The photograph shows water which on one side is behaving as water usually does in such a case. The stream-lines in no sense follow the boundary of the channel and there is a region of vigorous eddies.

On the other side however the water is behaving as the perfect fluid should behave, and is everywhere filling the channel with a smooth and eddiless stream. The explanation of this behaviour is that on the side of the channel where "stream-line" flow is occurring the "boundary layer" has been removed.

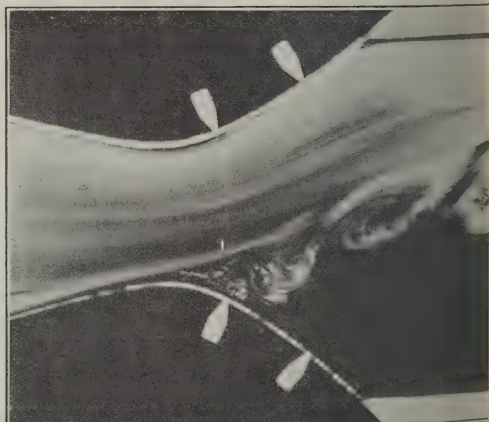
At the sides of the diverging channel there will be noticed certain white pointers. These indicate the position of slots cut in the channel wall. These slots can be opened or closed at will, and when opened are connected to an exhausting pump which sucks out fluid and removes the nearly stationary boundary layer.

The stagnant fluid removed is replaced by rapidly moving water from the stream proper, and because it is moving rapidly, the pressure gradient caused by the general flow is insufficient to reverse the direction of flow, and so set up the sequence of events which lead to turbulence.

In order to prevent the formation of turbulence and to persuade a real fluid to imitate the smooth flow of the nonviscous fluid at that is necessary is to get rid of this thin layer of fluid which is slowed up and brought to rest by viscous friction.

This can be done, as in the above instance, by sucking the boundary layer away into the inside of the body, or by providing some method of preventing it from slowing-up unduly.

In the Handley Page slot wing, a jet of air with a high velocity is led into the boundary layer at a point where its velocity normally



A CONTRAST IN STREAMLINES.—Water flowing from left to right through a suddenly expanding channel. On the upper side the "boundary layer" is being sucked out through slots at the points shown by the white pointers and the water flows smoothly round the channel's edge. On the lower sides the slots are closed. Between the stream proper and the wall of the channel a region of violent eddies may be seen.

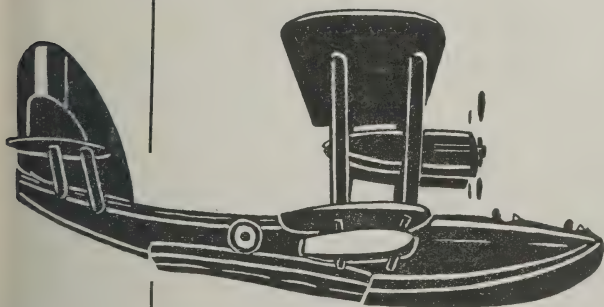
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would be very low. The nearly stagnant boundary layer is thus blown out into the main stream and is replaced by moving air from the jet, the formation of turbulence is prevented and a smooth flow past the aerofoil is maintained where otherwise the aerofoil would stall.

Another method is to keep the surface of the body itself in movement in the required direction. Smooth flow could be produced round a pair of cylinders in contact with one another and rotating in opposite directions, so that their outer surfaces moved with the stream.

When one rotating cylinder was used no vortices formed on the side on which the motion of the surface was in the direction of the stream. On the other side the vortex developed vigorously and the development of this vortex left the cylinder with an equal and opposite circulation, which accounted for the cross wind force or "lift" of the Flettner rotor.

A point of very great technical importance on which Prof. Prandtl was able only to touch lightly was one which was first observed in the case of spheres, and then of cylinders. At high speeds and on large scales it was found that there was a sudden fall in resistance, sometimes to as little as one quarter of that found at lower speed and smaller scale. When this happens it is found that the point at which the stream leaves the boundary of the body is pushed far back and the pressure distribution approaches the theoretical distribution for a perfect fluid.

The reason for this is that at high speeds the boundary layer itself becomes turbulent and is continuously getting mixed up with the main stream and therefore kept from coming to rest. That this is the explanation Prof. Prandtl has been able to prove by fixing a wire hoop round a sphere. This makes the boundary layer turbulent and causes the resistance of the sphere to fall.

It is because in the flow over aerofoils, airscrews, airship bodies and the like, conditions leading to turbulent boundary layers exist that these bodies give a flow of such low resistance and so closely approaching that of the theoretical non-viscous fluid.—W. H. S.

THEORY AND PRACTICAL POSSIBILITIES.

An interesting confirmation of the practical possibilities of applying the Prandtl theory of the boundary layer is given by an account, in the May issue of the Journal of the Society of Automotive Engineers, of some experiments made at McCook Field.

In one series of tests a jet of compressed air was directed tangentially to the upper surface of an aerofoil model to blow away or accelerate the boundary layer. This increased the maximum lift and deferred the stalling angle as had been expected. As might perhaps also be expected, the lift was increased more than in proportion to the increase of angle.

In another series of tests the boundary layer was sucked into the aerofoil through a series of small holes in the forward part of the upper surface, by a pump connected to the interior of the aerofoil. Increase in the stalling angle of 10° was thus obtained, and from measurements of the volume of air sucked in it is estimated that this result could be obtained on an aeroplane for the expenditure of only a small amount of power to drive the exhausting pump.

The figure given in this account is 4 per cent. of the power expended in lift—which unfortunately is vague.—W. H. S.

THE SPEEDS OF TWO-SEATER LIGHT AEROPLANES.

A good deal of discussion may be heard among the members of light aeroplane clubs and in similarly interested circles concerning the relative performance of various types of light aeroplanes. Naturally there are differences in speed. One would not expect a really light aeroplane—say with a Bristol Cherub—to have the same performance carrying the same load as a machine with a Mark II Cirrus.

Even among machines of varying types with the same engine there are undoubted differences, but such data as are available in the form of lap times and average speeds in various races suggest that the differences are very small,—so small that a really expert pilot on the slowest Cirrus-engined types may hope to beat an inexperienced pilot on the fastest of the same class by what he can make on corners.

Figures for the speeds attained in the races at the Bournemouth Easter Meeting amply bear out this view. On the actual figures the two Westland Widgeons were the fastest machines at the meeting, with the Widgeon II (Genet engine) slightly faster than the Widgeon III (Cirrus Mk. II). The fastest laps of these two machines were made at 97.2 (Genet) and 96.8 (Cirrus) m.p.h. Their average speeds were 93.6 and 92.6 m.p.h. respectively, taking all completed laps into account. [Yet the makers claim that the Widgeon III is actually the faster.—C. C. G.]

The next fastest machine was the Avian QN (Cirrus Mk. II), whose average speed was 89.4 m.p.h., with a fastest lap of 92.3 m.p.h., and thereafter came Capt. de Havilland's Moth "X" (Cirrus Mk. II), average 88.3 m.p.h., fastest lap 92.3 m.p.h. After this the order is Avian QL, Moth NO, Avian OV, Moth OU (Genet), Bluebird KO (Genet), Moth PG, Moth PU and Moth NX. All these machines except OU and KO had Cirrus Mk. II engines, and the last has an over-all average of 81.7 m.p.h., and a fastest lap of 84 m.p.h.

From this it is fairly obvious that there is less between Moths, Avians and Bluebirds with Genet or Cirrus engines than there was difference between their handling over the course. But it would seem that the two Widgeon monoplanes were definitely faster than any of the biplanes.

Even here it is not certain that the real speed difference is as great as might be supposed from the figures. The fastest lap of the slowest of the machines mentioned above was only four miles an hour slower than the slowest figure for the Widgeon II in one complete race.

Moreover the two Widgeons are each of them more or less the first models of their type, whereas the Moths and Avians are more or less production models. Everyone with experience in these matters knows how the weight of a production model gradually climbs above that of the prototype, and how its performance declines from that of the original.

This factor may to some extent account for the superior speed of the Widgeons. On the other hand the fact that they are decidedly clean monoplanes, as against the biplanes with which they are compared, might reasonably be expected to give them a slight gain in top speed.

There is a current rumour which accounts for the surprising performance of Widgeon III in a somewhat amusing manner. The machine came to Bournemouth new, and fitted with the first airscrew made for her. This screw proved a little light for the engine from the beginning, and turned at full throttle at a little higher engine "revs." than had been expected.

During the course of the meeting, presumably because this screw warped slightly in use, the engine revolutions at full throttle grew steadily, until by the end of the meeting something like 200 r.p.m. had been presented to the Widgeon III by this kindly airscrew.

Whether this story be true or not the Widgeon III's average speed increased fairly steadily with each successive race, starting at 87.5 and rising to 95.0 m.p.h.

According to the story the handicappers were aware of the automatic accelerating device on this machine and allowed for it in their work.

All of which goes to show firstly that the handicapper's life is far from a happy one, and secondly that the would-be purchaser of a private two-seater of the class now in question may confidently acquire any one of the several reputable makers now offered to him with the certainty that in regard to speed there is about the same difference between different makes as there is between different machines of the same make.—W. H. S.

MORE APOLOGIES.

In referring to the various trans-Atlantic flights of the past in relation to Capt. Lindbergh's Flight, an error was made as to the engines used by Commandante Franco when he made the first non-stop flight across the South Atlantic. The engines he used were in fact Napier Lions.

THE FIRST TOTALLY-ENCLOSED AEROPLANE.

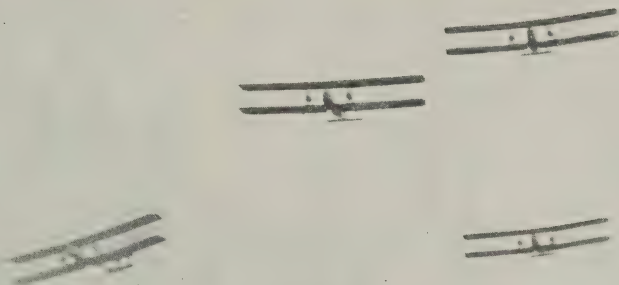
Now that the totally-enclosed monoplane seems to be so much the fashion there is interest in reminding people that the first totally-enclosed aeroplane which ever flew was one built by the Avro people at Brooklands in 1912. A catalogue picture of the machine is reproduced herewith, and although the original photograph has been very much touched-up for catalogue purposes, the machine was actually exactly as shown in the picture.

This machine was built by Mr. A. V. Roe and flown early in May, 1912, by Lieut. J. C. Parke, R.N. It was crashed some time in 1912, and Mr. Roe built a totally-enclosed biplane with a four-cylinder 60 h.p. Green engine which performed very well at the Military Trials on Salisbury Plain in August of that year. It was in that machine, piloted by Lieut. Parke that Mr. H. V. Roe, who was at that time the financier and business manager of the Avro firm, first gave a demonstration of the commercial possibilities of aircraft by taking a typewriter with him in the machine and writing various letters on it while cruising about over Salisbury Plain.

The brothers A. V. Roe and H. V. Roe get so little credit for all the pioneer work they have done that it is just as well to remind people that at one time or another they have forestalled almost all the varieties of aircraft which are continually being held up as novelties.



THE FIRST TOTALLY-ENCLOSED AEROPLANE.—The Avro Monoplane (Vale engine) of 1911.



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THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: H. E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending May 23.

Total flying time 83 hrs. 30 mins.

Instructors.—Messrs. F. G. M. Sparks and S. L. F. St. Barbe. **Instruction.**—H. O. Cugenheim, J. H. Vaisey, G. Black, A. B. Ferguson, I. H. McCure, C. E. Murrell, P. W. Hoare, F. W. R. Martino, P. Clarkson, E. J. B. King, G. H. S. Mills, E. A. Lingard, C. Miesegaes, Capt. H. Spooner, Miss Fletcher, H. Solomon, L. Daniels, G. E. Clair, R. M. S. Veal, A. C. M. Jackaman, C. H. Swan, J. G. Crammond, A. J. Richardson, J. J. Hofer, W. Hay, R. Drysdale Smith, A. Southgate, J. C. Elford, J. R. de Havilland, L. W. Gibbens, R. Maurice, G. Lyon. **Solo.**—R. Sanders Clark, G. Black, O. J. Tapper, I. H. McCure, C. E. Murrell, J. H. Saffery, Sq. Ldr. M. E. A. Wright, W. Hay, Major K. M. Beaumont, D.S.O., A. F. Wallace, A. C. Pearson, J. J. Hofer, R. P. Cooper, A. J. Mulder, H. Solomon, G. Merton, Miss O'Brien, R. Malcolm, A. J. Richardson, Major H. A. Petre, D.S.O., W. Roche Kelly, C. H. Swan, D. P. H. Esler. **Passengers.**—J. W. Weston, F. S. Boulle, E. D. Elliott, A. G. Stores.

On Thursday, May 26, 1927, J. J. Hofer and R. P. Cooper passed the tests for their Aviators' Certificates.

The flying for the week—83 hrs. 30 mins., is a record, and a further record was put up on Sunday, May 29, when the total flying time for the day was 23 hrs. 35 mins.

The Lancashire Aero Club.

[Sec.: C. J. Wood, Windsor Park, Chapel Street, Hyde, Cheshire.]

Report for week ending May 28.

Total flying time 37 hrs. 50 mins.

Dual with Mr. Brown.—Messrs. Rowley 2 hrs. 15 mins., Harber 1 hr. 55 mins., Torres and Miss Emery 1 hr. 20 mins. each, Mr. Allott and Miss Baerlein 1 hr. 10 mins. each; Messrs. Shiers 50 mins., Leeming and Davidson 40 mins. each, Williamson 35 mins., Nelson, Serck and Ruddy 30 mins. each, Anderson and Stonex 25 mins. each, Meades, Hartley and Gattrell 20 mins. each, Ward 10 mins. **Dual with Mr. Scholes.**—Messrs. F. Scholes and Nelson 30 mins. each, Dickinson 15 mins. **Dual with Mr. Cantrill.**—Mr. Benson 10 mins. **Solo.**—Messrs. Costa 2 hrs. 25 mins., Leeming 2 hrs. 10 mins., Fallon 1 hr. 40 mins., Twemlow and Chapman 1 hr. 25 mins. each, Abdalla 1 hr. 5 mins., Nelson 55 mins., Ward 50 mins., Lacayo 35 mins., Michelson 30 mins., Forshaw 25 mins., Crosthwaite 15 mins., Benson, Dickinson, Gattrell and Goodfellow 10 mins. each. **Joy-rides.**—With Mr. Twemlow—Messrs. Meades 1 hr. 45 mins., Bolshaw 20 mins. With Mr. Lacayo—Mr. Hartley 1 hr. 10 mins. With Mr. Goodfellow—Mrs. Patti 20 mins., Mr. ap Thomas 15 mins. With Mr. Leeming—Mr. Sprigg 25 mins. With Mr. Brown—Messrs. Colne and Hartley 10 mins. each. With Mr. Scholes—Miss Ieely 10 mins. With Mr. Cantrill—Mr. Thorpe 10 mins. **Test Flights.**—1 hr. 45 mins.

There has been a lack of incident about the week's flying. Mr. Twemlow celebrated his departure to the Isle of Man for the T.T. by putting in 3½ hrs. flying before he went. Owing to engine and machine overhauls, coupled with the attitude of our tyrannous Finance Committees we are not entering any machines for the Newcastle meeting, which is very sad. Sundry trophies of ours are resting in their possession as the result of our last meeting and one would have liked to go and pinch a few of theirs in return. Anyway, here's wishing them a good show.

The Newcastle Flying Meeting.

[Sec.: A. H. Bell, Cramlington Aerodrome, Northumberland.]

Report for week ending May 29.

Total flying time 58 hrs. 10 mins. LX 24 hrs. 30 mins. QV 5 hrs. 40 mins. D.H.53 RK 8 hrs.

Instruction.—Mrs. Heslop, Miss Leatherth, Messrs. Shaw, Heaton, Wardill, Hayton, Elmes, H. Ellis, Pargeter, George, Jewett, J. Gibson, Wilson, Swann, Bainbridge, Palmer, Rasmussen. "A" Pilots.—Messrs. Mathews, C. Thompson, R. N. Thompson, H. Ellis, and Dr. Dixon. **Solo Training.**—Messrs. Bainbridge, Turnbull and Shaw.

Mr. Shaw was launched on Saturday. The working party on the aerodrome thought that it was one of the Solo party having a refresher on landings, so Mr. Shaw has reason to be proud.

Great signs of activity are to be found on the aerodrome as preparations for the Flying Meeting are now well under way. A notable absentee is the Secretary, who is at present taking a rest. This rest has been forced upon him by a visit to the dentist, but the latest reports say that he will be back before the end of the week.

The Yorkshire Aeroplane Club.

[Sec.: J. F. Barnes, 39, Swan Arcade, Bradford.]

Report for week ending May 28.

Total flying time, 43 hrs. 50 mins. Solo flying, 18 hrs. 20 mins. Dual instruction, 12 hrs. 20 mins. Test flights, 30 mins. Joy-rides, 2 hrs. 40 mins.

Instruction with Mr. Beck.—Major Horley, Dr. Ling, Messrs. Miller, Batcock, Blackburn, Oglesby, B. Dawson, Thompson, Leatham, Watson, Bray, Marshall, Brown, Ambler, Birch, D. Atcherley, Swift, and Leech. **Solo.**—Messrs. M. B. Lax, Little, Mann, L. S. Dawson, Wood, Batcock, Wilson, Fielden, Henry Leatham, Wayman, Watson, Carter, Norway, D. Atcherley, Leech, and R. K. Lax.

On Monday Mr. Beck took one of our machines over to Scarborough, where he was the guest of the Yorkshire Hussars in camp. Refreshed and invigorated, he proceeded to "sing for his supper," the Hussars aviating with considerable verve and aplomb. We understand that Lord Grimthorpe and Mr. North will be joining the Club in consequence.

On Sunday Mr. Stack arrived on a Moth from Stag Lane on a consumption trial. Mr. Stack's consumption was considerable.

Many thanks to Lancashire for their few kind words in connection with our flying time. We cannot agree, however, that the improvement is solely due to the appointment of Mr. Beck. We are inclined rather to attribute it to the fact the Directors, tiring of a prolonged correspondence, had cut their losses recently and ordered a new wheel. We wish to take this opportunity of apologising publicly to Mr. Mann for certain slurs cast upon his ability as a pilot in connection with his recent flight from Woodford to Sherburn.

On Thursday last Mr. Wilson, in the course of his business, had occasion to visit Oxford to collect a Morris Cowley. He flew down with Mr. Mann, under threat of excommunication if the machine were not returned in time for Saturday's flying. Friday dawned, with mist, rain, and low cloud at Oxford. On ringing up Sherburn they were informed that the weather there was fair and balmy. Whereupon they took thought, folded the wings of the Moth, put the tail up on the hood of the Cowley, and set sail for a sunnier clime.

At Banbury they paused awhile and, refreshed, were inclined to take a more optimistic view of the flying conditions. Moreover, the sun came out. The omens being favourable they drove the combination into a suitable field, unfolded the Moth, and Mr. Mann flew it back to Sherburn in the very creditable time of two hours. We feel that a pilot of this initiative is hardly deserving of the strictures passed upon him in connection with his previous epic flight. [Splendid idea! Congratulations to all concerned. A combined car and aeroplane camping tour, with a car-caravan to act as supply-base and sleeping quarters seems a workable scheme for the near future.—C. G. G.]

Midland Aero Club Limited.

[Sec.: Gilbert Dennison, Villa Road, Handsworth, Birmingham.]

Report for week ending May 14.

Total flying time 10 hrs. 52 mins.

Dual instruction by Mr. McDonough.—F. Coxhill, E. P. Lane, J. C. Rowlands, R. D. Bednell, C. Burrows, R. L. Brinton, J. Austin. **Advt. Dual.**—H. J. Willis. **Solo.**—A. M. Glover, R. L. Jackson, H. J. Willis, E. J. Brighton, C. V. Perry. **Passenger Flights.**—With Mr. McDonough—Mrs. Willis and I. S. Austin. With Mr. Brighton—F. Coxhill, F. J. Whitworth, H. Bolton, R. L. Jackson, R. D. Bednell, G. Lamb. With Mr. Perry—H. Leach.

On Saturday Mr. McDonough flew down to Hamble for the Hampshire Pageant. On Sunday Lt.-Cdr. Graham called in for petrol.

Report for week ending May 28.

Total flying time 23 hrs. 26 mins.

Dual instruction by Mr. McDonough.—F. Coxhill, E. P. Lane, C. Fellowes, J. C. Rowlands, J. Austin, R. D. Bednell, R. L. Brinton, S. H. Smith, R. Cazalet, H. Smith, and G. Aldridge. **Solo.**—C. V. Perry, E. J. Brighton, H. J. Willis, R. L. Jackson, J. Brinton, S. H. Smith, W. Swann, and C. Fellowes. **Passenger Flights.**—Mrs. Willis. J. Ashthorpe, J. Brevin, N. Crane, A. Methley, and H. De Saitte.

On Sunday Lord Ossulston and his Moth paid us a visit and on Tuesday Mr. Loader with Mr. Stanhope Sprigg of Airways. Mr. Loader and Mr. Hubert Broad also paid a visit on a Moth on Saturday.

During the week Mr. S. H. Smith made his first solo very well.

The Hampshire Aeroplane Club.

[Sec.: Major R. Ross-White, Hamble, Southampton.]

Report for week ending May 29.

Total flying time 22 hrs. 40 mins. Instruction flying, 15 hrs. 40 mins. Solo flying, 5 hrs. 25 mins. Joy-riding, 1 hr. 10 mins. Test flights, 25 mins.

No flying possible on three days owing to weather.

Instruction.—Major Jenkins 2 hrs. 10 mins., Lieut. Cadell, R.N., 1 hrs. 5 mins., Mr. Melkins 1 hr. 10 mins., Doctor Morrison 50 mins., Molyneux 30 mins., Chaffey 45 mins., G. B. Parker 40 mins., Henderson 40 mins., Cox 35 mins., Capt. Molyneux 35 mins., A. V. Roe 30 mins., Kerry 30 mins., Brewster 30 mins., Morley 25 mins., Heathcote 20 mins., E. A. L. Parker 20 mins., Bishop 20 mins., Stokes 20 mins., Flg. Off. Southey 15 mins., Fortlage 15 mins., Deane 15 mins., Cripps 15 mins., Courtney 15 mins., Dickson 15 mins., Bound 15 mins., Whittle 10 mins., Shepherd 5 mins., and Flg. Off. Ogilvie-Forbes 5 mins. **Solo.**—Flg. Off. Southey 1 hr. 15 mins., K. P. L. Bowen 45 mins., E. Wyllie 15 mins., Capt. Yeatman 35 mins., Shepherd 30 mins., Deane 30 mins., Flt. Lt. Crawford 15 mins., Ash 10 mins., Flg. Off. Ogilvie-Forbes 10 mins., D. Rumble 5 mins., and Cooper 5 mins., and a very modest member who objects to seeing his name in this list, 30 mins. **Joy-rides.**—Mrs. Clough, Mrs. Gardner, Mrs. Gibbs, Mr. Gibbs and a cinema photographer from Pathé Frères, all with Capt. Thomson and Mr. Pack with our modest member mentioned among the soloists.

Mr. K. P. L. Bowen successfully did all the tests for his "A" licence. It is expected that our membership roll in the pilot grade will reach the figure of 120 within a week or so, after which a waiting list will be instituted, and applicants' names will be transferred to the active list as present pupils complete their instruction.

The Scottish Flying Club.

[Sec. of Propaganda Committee: Flg. Off. H. W. Smith.]

Committee Activities.—The Scottish Flying Club Movement Committee are able to report excellent progress. Applications for further information are coming along in splendid style. The tone of the enquiries is refreshing after the regrettable tone of 1925-26.

The Committee have a vastly different proposition to face in their endeavours to work out a scheme unsupported by an Air Ministry grant, and when it is remembered that they are working in a land where "Aberdonianism" flourishes.

Three possible aerodrome sites are receiving consideration, and no doubt that side of the question will be thoroughly sifted.

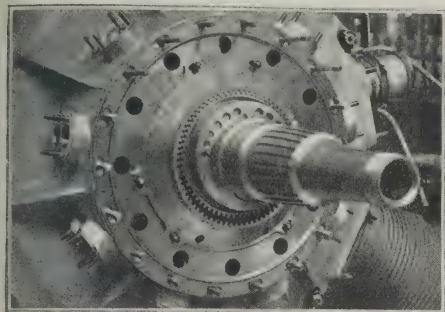
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DON'T FORGET THE NEWCASTLE MEETING ON JUNE 11.

FEATURES IN THE
DESIGN AND
CONSTRUCTION OF THE

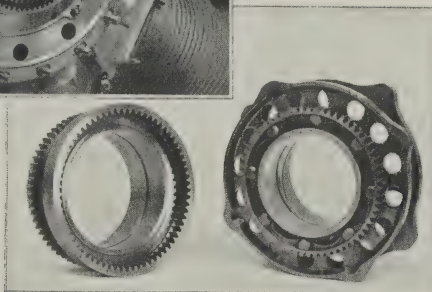
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THE LIGHT AEROPLANE HEIGHT RECORD.

The following letter has been received from Paris from Mrs. Cyril Turner,—whose stage name and professional flying name is Mlle. Andrée Peyre:—

"Dear Mr. Editor,—While being fully aware that no official status is, as yet, given to records established by women aviators, nevertheless, one does not like to see a publication like *THE AEROPLANE*, recognised the whole world over for the reliability of its information, publish facts that are doubtful.

"In the issue of May 25, under the heading 'A Light Aeroplane Height Record,' one reads of the excellent flight of the Hon. Lady Bailey and Mrs. Elliott Lynn, during which flight a height of 16,000 feet (uncorrected) was reached.

"I would like to mention that in June, 1923, at the Rogers Flying Field, Los Angeles, California, while flying a Farman Sports Plane with an Anzani engine, I reached an altitude of 16,300 feet, as recorded on a barograph supplied by the Aero Club of California, which record was corrected and officially recognised by the said Aero Club, and performed under the direct supervision of the President of the Club.

"Further, on this flight, I was entirely alone.

"This is in no way meant as a criticism, or as belittling the performances of others, but merely to acquaint you of the facts.

"S, Rue Champfleury, Paris.

(Signed) ANDRÉE PEYRE."

THE SPORT OF FLYING.

At the Dorset Assizes on May 26 before Mr. Justice Avory, Telawny Dayrell Reed, farmer, of West Parley, was indicted on a reduced charge of common assault on Sq. Ldr. Longton by shooting at him with a gun and also with doing malicious damage to an aeroplane to the amount of £80. The defendant said he was convinced the shots from his gun did not hit the aeroplane.

The Jury returned a verdict of *not guilty*. On May 25 the Grand Jury at Dorset Assizes threw out the Bill charging Reed with attempting to wound the pilot.

AIR AFFAIRS IN PARLIAMENT.

THE SLOT AND AILERON CONTROL.

In the House of Commons on May 23, in reply to a question by SIR F. HALL, the UNDER-SECRETARY OF STATE FOR AIR said that the combined slot and aileron device originated in the National Physical Laboratory and had been developed under the guidance of the Aeronautical Research Committee. Up to the present it had been experimentally applied to five types of Service aircraft and development was in progress.

The device showed great promise in certain directions, but its mechanical application presented considerable difficulties and up till now none of the different mechanisms by which it had been applied could be considered satisfactory for Service use. The latest form which

had been tried was more promising than any hitherto employed and it was hoped that it would, after further trial, be found satisfactory. Pending the elaboration of a satisfactory mechanism it had not been possible to fit this device to any but the experimental machines above referred to.

THE CAIRO-KARACHI AIR ROUTE.

In the House of Commons on May 23, in reply to a question by LT.-CDR. KENWORTHY, the UNDER-SECRETARY OF STATE FOR AIR said that the Cairo-Basrah section of the route was in full operation, but the operation of the Basrah-Karachi section was still suspended. A route which followed the Arabian coast of the Persian Gulf and ran thence *via* Baluchistan to Karachi was under consideration. Negotiations with the Persian Government were still pending.

ENTRIES FOR THE BOURNEMOUTH WHITSUN MEETING.

The following aeroplanes and pilots have been entered for the flying races at the Bournemouth Race Course on Saturday and Monday next. As several pilots will be flying the same machine the names of the pilots are grouped after the machine which they will fly:—

PU, D.H. Moth (Cirrus Mark II), The Hon. Lady Bailey: FR, D.H. Moth (Cirrus Mark II), Flg. Off. J. Summers, Mrs. J. R. Bell, and Flt. Lt. S. L. G. Pope: MF, D.H. Moth (Cirrus Mark II), Miss S. O'Brien, Mr. F. G. M. Sparks, and Major H. A. Petre: NO, D.H. Moth (Cirrus Mark II), Capt. G. de Havilland: OL, D.H. Moth (Cirrus Mark II), Mr. G. I. Thomson: OU, D.H. Moth (Armstrong-Siddeley Genet), Flt. Lt. d'Arcy Greig: QH, D.H. Moth "X" (Cirrus Mark II), Mr. H. S. Broad.

DO, D.H.37 (300 h.p. A.D.C. Nimbus), Major H. Hemming: IO, D.H.51 (720 h.p. Airdisco), Col. the Master of Sempill: RA, D.H.53 (Blackburne Tomtit), Mr. R. P. Cooper: QP, D.H.53 (Bristol Cherub III), Flg. Off. Mackenzie-Richards.

OV, Avro Avian (Cirrus Mark II), Mr. B. Hinkler: QL, Avro Avian (Cirrus Mark II), Mr. D. A. N. Watt: QN, Avro Avian (Cirrus Mark II), Flt. Lt. J. A. Gray.

PA, S.E.5a (180 h.p. Viper), Mrs. S. C. Elliott-Lynn: QM, S.E.5a (180 h.p. Viper), Flg. Off. A. H. Wheeler: QK, S.E.5a (180 h.p. Viper): LT-Col. G. L. P. Henderson: OG, S.E.5a (180 h.p. Viper), Mr. D. A. N. Watt: IA, S.E.5a (180 h.p. Viper), Mr. M. L. Bramson.

PW, Westland Widgcon III (Cirrus Mark II), Mrs. S. C. Elliott-Lynn, Flt. Lt. L. P. Openshaw: IY, Westland Wood Pigeon (45 h.p. Anzani), Flg. Off. A. F. Scroggs.

JO, A.N.E.C. II (Bristol Cherub III), Mr. Norman Jones: OO, Halton I (Bristol Cherub III), Flt. Lt. le Poer Trench: PB, C.L.A. (Bristol Cherub III), Flt. Lt. N. Comper.

JM, Bristol Brownie (Bristol Cherub III), Mr. G. Terrell and Mr. F. G. M. Sparks: KD, Blackburn Bluebird (Armstrong-Siddeley Genet), Sq. Ldr. W. H. Loughton.

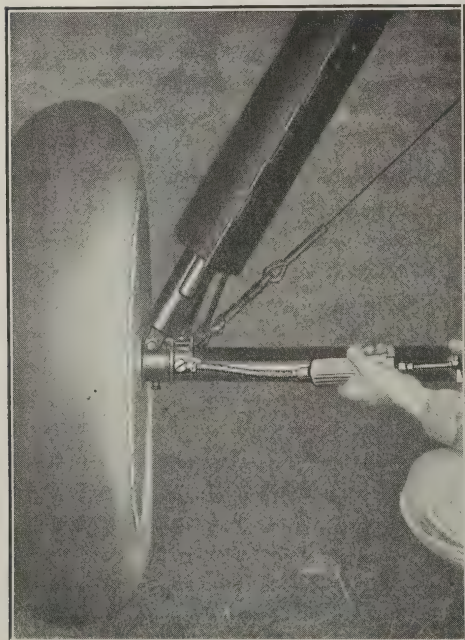
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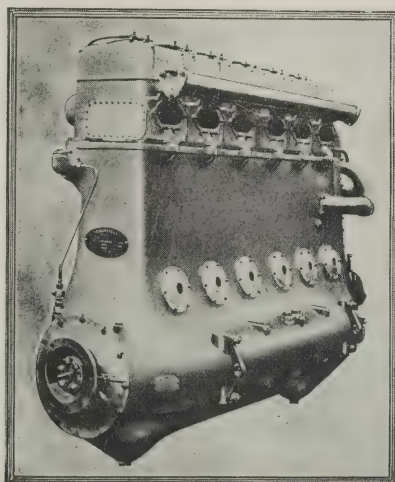
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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 23; Tuesday, 22; Wednesday, 24; Thursday, 15; Friday, 20; Saturday, 22; Sunday, 9

IMPERIAL AIRWAYS LTD.:
Paris—London; London—Brussels—Cologne: Machines 49, passengers 479, freight 20 tons.

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Paris—London: Machines 37, passengers 88, freight 12½ tons.

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Amsterdam—Rotterdam—London: Machines 11, passengers 54, freight 3 tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 19, passengers 36.

SABENA:

Brussels—London: Machines 12, passengers 25.

PRIVATE:

Machines 7, passengers 7.

Total number of trips by British Machines, 56, carrying 486 passengers. Foreign Machines, 79, carrying 203 passengers.

Comparative Figures:

Week ending May 29:

Machines, 135; Passengers, 689; Crews, 221; Total personnel, 910.

Corresponding week, 1926:

Machines, 139; Passengers, 701; Crews, 181; Total personnel, 882.

Corresponding week, 1925:

Machines, 135; Passengers, 555; Crews, 173; Total personnel, 728.

Corresponding week, 1924:

Machines, 82; Passengers, 321; Crews, 130; Total personnel, 451.

Corresponding week, 1923:

Machines, 103; Passengers, 285; Crews, 168; Total personnel, 453.

Corresponding week, 1922:

Machines, 150; Passengers, 339; Crews, 207; Total personnel, 546.

Corresponding week, 1921:

Machines, 85; Passengers, 339; Crews, 101; Total personnel, 440.

Corresponding week, 1920:

Machines, 89; Passengers, 126; Crews, 100; Total personnel, 226.

Croydon Notes.

Owing to the fact that Croydon Notes have been considered by the Editor to be readable this week, they have temporarily moved to a more respectable portion of the paper. They will appear in their usual position next week if their author is allowed by friends and foes to live.—G. D.

A CIVILIAN VENTURE.

THE AEROPLANE received recently from D. Napier and Son Ltd. an interesting account of the work which has been done by a Vickers Viking amphibian (Napier engine) which has returned from Switzerland and the South of France after a successful season's flying. This machine, piloted by Mr. Leslie Hamilton, has covered over 17,000 miles without the engine being touched, this distance including journeys to Rome, Madrid and to Corsica.

On one occasion, having flown from Zürich to Montreux, on Lake Geneva, the passengers had a very pleasant journey till they alighted on the lake, where the water was so rough that after taxying about a mile and a half all the passengers were seasick.

By contrast, the next day was so calm and the surface of the water was so glassy that the pilot could only see the bed of the lake and had to fly round until he found a boat from which to take his right level for alighting.

For some time Mr. Hamilton ran a service between Cannes and Monte Carlo. This service was well supported by English and American visitors, who appreciated the fact that the journey from hotel to hotel could be done in 17 minutes by flying as against ¾ hours by train.

With the Napier Lion the Viking has been habitually carrying four passengers and 100 lbs. of luggage.

The season has been so successful that Mr. Hamilton is contemplating running several machines in Switzerland next season.

AIR TAXI ACTIVITY.

Air Taxis Ltd. have had a very busy month. Since the beginning of May they have made three trips to Marseille and back, and one Toulon and back, on the Martinsyde on Press work. In addition these trips they have made several expeditions to the North Coast also on Press work.

On May 18 Mr. V. M. Dickinson, one of the pilots, started on extended photographic tour of Wales and the Midlands on the firm Moth. The tour included Newport, Cardiff, Chester, Rhyl, Manches and Bradford and a number of small towns in Lancashire.

Mr. W. L. Hope flew to Paris and back on the D.H.50 on May 16 and to Paris and back and a tour round the battlefields on May 17 returning the next day in each case.

Mr. Hope flew to Paris again on the 23rd and on the 28th conveyed Capt. Lindbergh from Paris to Brussels on the D.H. During this trip they flew at about 8,000 ft. He also flew back Croydon on the 29th with Capt. Lindbergh.

On May 16 Mr. Dickinson flew to Dover and back on the Martinsyde on Press work, and on the following day Mr. Hope flew same machine to St. Ingelvert and back.

The new telephone number of Air Taxis Ltd. is Colindale 6. The Aerodrome is at Stag Lane.

AIR NAVIGATORS' LICENCES.

Air Ministry Notice to Airmen, No. 42, of 1927, states:

An examination for 1st and 2nd Class Air Navigators' licences will be held at the Air Ministry, Gwydyr House, Whitehall, on Monday and Tuesday, June 27 and 28, 1927.

Application forms, the syllabi, and conditions of examination may be obtained on application to the Secretary, Air Ministry (C.A.) Gwydyr House, Whitehall, London, S.W.1.

Formal applications to sit at this examination should be received at the above address not later than June 20. Candidates should give with their applications full details of any qualifications and experience they already possess.

Before a licence can be issued, candidates will have to pass medical examination at the Central Medical Board, 5/6, Clements in London, W.C.2. Arrangements can be made for this examination to take place on June 29, if candidates make early application to be examined on that day.

PERSONAL NOTICES.

DEATH.

HOWARD.—At Gaza, Palestine, on May 25, as the result of a flying accident, Robert Douglas Vernon Howard, Reserve of Air Force Officers.

Mr. Howard served in the R.A.F. during the War 1914-18 and was demobilised in 1919. He rejoined in October, 1921, with a S.S. commission and passed to the Reserve in October, 1926. He joined the Staff Imperial Airways last December and went out East in the Hercules. Since then he has been flying between Cairo and Basra.

[Mr. Howard was at Gaza, which is a station of Imperial Airways when an R.A.F. machine came in with some trouble in the tail. Certain minor repairs were made to this machine and Mr. Howard offered to test it afterwards. Mr. Turvey went with him as passenger. As they were landing the machine dived and they were both killed.]

FORTHCOMING MARRIAGES.

BINNIE—CONWAY.—The engagement is announced between J. E. Binnie, Plt. Off., R.A.F., and Miss J. Conway, M.B., Ch.B., daughter of Mr. and Mrs. J. Conway, Mount Pleasant, Burnside, Glasgow.

HARTLEY—HODGSON.—An engagement is announced between Mr. Arthur Clifford Hartley, O.B.E. (late R.A.F.), of Glenville, Camberley, Surrey, elder son of the late Dr. and Mrs. G. T. Hartley, of Hants and Miss Nina Hodgson, daughter of the late Mr. W. E. Hodgson and of Mrs. Edward Dumoulin, of Ferryby Lodge, North Ferryby, E. Yorkshire.

BIRTHS.

HILL.—On May 29, at 82, Porchester Terrace, W.2, to Jane (née Morris) wife of Flt. Lt. Cedric W. Hill—a daughter.

WINDSOR.—On May 27, at 21, Parade, Barry, to Nancy (née Morrison) wife of Capt. J. S. Windsor, M.C., 24th Regt., and late R.A.F.—a son.



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INCORPORATING AERONAUTICAL ENGINEERING

Edited by
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Vol. XXXII. No. 23.

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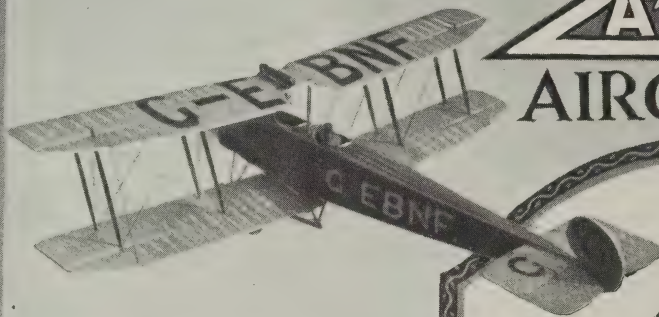
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JUNE 8,
1927.

THE AEROPLANE

Incorporating
Aeronautical Engineering

VOL. XXXII.
No. 23.

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ON THE LESSONS OF THE WEEK-END.

Nothing has ever shown the grotesque behaviour of Fate so strikingly than have the happenings in aviation of the past week. And from each of those curious strokes of fate there are lessons to be learned.

During the week-end three good men who could ill be spared from among those who were working for the progress of aviation were killed at an inconsiderable race-meeting at Bournemouth. And during those same three days an excellent American pilot with a Jew financier flew the Atlantic and beat the record put up by Capt. Lindbergh a fortnight earlier.

If we include the long-distance flights of Flt. Lts. Carr and Ilman, M. Coste and Capt. Rignot, and Capt. Lindbergh, together with that of Mr. Chamberlin and Mr. Levine, we have seven men taking enormous risks in flying over seas, mountains and deserts by day and night through all kinds of weather and without any aid with it unhurt. On the other hand we have a young undergraduate being killed in the course of an apparently riskless joy-ride, and two of the finest pilots in this country being killed while taking the comparatively small risks of flying in an air race—a game in which pilots of very little experience have taken part without harm for many years.

There seems to be something wrong with the arrangements everywhere. And yet it is all of a piece with the history of human endeavour. And it all fits in with the scheme of nature of which Tennyson has said:—

"So careful of the type she seems,
So careless of the single life."

THE CHANCES OF CROSSING.

From the various long flights one may estimate that if a dozen modern aeroplanes with ordinarily good pilots and any of the standard first-class engines of to-day were to start to cross the Atlantic nine or ten of them would get across. For one must be remembered that the distance of the Carr and Gillin flight was enough to have carried the machine from New York to France, though it would not have reached Paris, and that the latest long-distance flight by M. Coste and Capt. Rignot on June 6 of 3,200 miles, from Paris to the Urals, was more than enough to have crossed the Atlantic from Continent to Continent, though not from Capital to Capital.

Thus it would appear as though flying the Atlantic were a very much more risky than flying in an air race, though one must be remembered that we have not had a fatal accident in air racing for years in spite of the number of comparative novices who have been flying.

The lesson to be learned from the whole combination of events seems to be that we have now got extraordinarily powerful engines and quite trustworthy aeroplanes, so far as their actual material and engineering structure are concerned, but that we still have a long way to go before aeroplanes can be considered safe vehicles.

THE Bournemouth ACCIDENTS.

Personally one was not at Bournemouth, so one did not see any of the accidents, and thus one has no theories of one's own as to the cause of the accidents such as one might have had if one had seen them happen. The following remarks are based entirely on information received from various sources which have been weighed up one against the other. The accidents are described in the account of the meeting, which appears in its proper position of relative importance, at the back of the paper.

Major Hemming's accident seems almost certainly to have been one which could have been avoided if the machine had been controllable below stalling point. The machine itself, an Alan Butler's well-known D.H.37, named *Lois*, is one of the best aeroplanes ever built. She is highly efficient and is perfectly controllable. But, like every other aeroplane in the world, with the exception of a few fitted with special devices, she is not controllable below stalling point.

Major Hemming is a very able pilot, and, so far as evidence can be found, the machine was not actually stalling. But apparently she was on the verge of stalling, and in order to

prevent her from actually reaching stalling point he had to turn and put his nose down in one particular direction, which brought his wing in contact with the number-board of the race course.

If the machine had been controllable below stalling point, as every machine in the World will be some day, he could have put it in any direction he wanted and so could have avoided that particular obstruction.

In saying this one does not cast the slightest reflection on the machine itself. When a machine is in a certain position on the verge of stalling it has to go on in a certain direction so as to pick up its flying speed, just as in riding a bicycle or in skating or in driving a car if a skid starts one has to go in a certain direction dictated by the law of gravity and centrifugal force before one can recover control.

The accident was nobody's fault. But it is another proof of the need for progress in aeroplane design.

VISION.

The accident in which Sq. Ldr. Longton and Major Openshaw were killed was an example of the need for progress in yet another direction, and very possibly Major Hemming's accident also had to do with the same thing, that is, the provision of an all-round view for the pilot.

Again one would emphasise the fact that no fault can be found with the machines according to present-day ideas. The Widgeon was a parasol monoplane and so, although the pilot had a perfectly good view downwards, his view upwards and forwards was obstructed by his wings. The Bluebird was a side-by-side biplane in which the pilot's view was not only obstructed by the upper planes and to some extent by the lower planes but was also obstructed by the fuselage itself on the side of the passenger's seat.

Both machines had excellent views ahead, and in most directions—as good in fact as any machines of their type could be. Yet obviously two such first-class pilots as Sq. Ldr. Longton and Major Openshaw must somehow or another have come together in such a way that each was under or over the blind spot of the other.

Now if we compare those machines with the two successful trans-Atlantic machines we find that in both the trans-Atlantic machines the pilots have a very much worse view. They are right under their wings so that they cannot possibly see anything that is coming down on top of them. Their view forward is very much obstructed,—in fact in Capt. Lindbergh's Ryan machine he has no view forward at all and in the Bellanca the view is really very little better. Celluloid windows never provide a really clear outlook in any case. Consequently both the trans-Atlantic machines would be very much more dangerous to fly in crowded air than either of the machines which collided at Bournemouth.

Furthermore neither of the trans-Atlantic machines has any kind of device to provide control below stalling point. If either of the pilots had found himself in an awkward position through engine failure at the beginning of his flight he would have had no hope of getting down safely except by keeping on a straight line. Therefore intrinsically the trans-Atlantic machines were far more dangerous as flying machines than any of the three which crashed at Bournemouth.

Yet the American machines are getting such publicity all over the World as could not be bought for millions of dollars (and well they deserve it), while the British Aircraft Industry gets publicity of quite the wrong kind.

As time goes on and flying becomes more and more common there will be more and more machines in the air and the neighbourhood of aerodromes will become more and more dangerous owing to increasing traffic round them. Even as it is, we hear every now and then of pilots having unpleasantly narrow escapes from collisions in thick weather, and several years ago a British machine and a French machine collided head on when flying on the London—Paris route.

Obviously, therefore, if flying is to be made safe our designers must pay immediate attention to the problems of providing better view for pilots and full control below stalling point.

Only the other day one was shown by a young designer in one of our big aircraft firms a lay-out for a biplane which came as near giving the pilot a complete view in every direction as we are likely to get, at any rate in any form of tractor machine. We can only hope that his firm will produce a machine to that design.

Personally one is inclined to think that the old type of

pusher machine, naturally very much modified, and possibly with two or three engines, will be the ultimate solution of this particular problem. In all lines of human progress improvements are produced by success on one hand and apparently needless sacrifice on the other. Let us hope that those lives which were lost at Bournemouth will not have been wasted.—C. G. G.

WALTER LONGTON.

Squadron-Leader Walter Longton, D.F.C., A.F.C., had made for himself a place in British Aviation which was all his own. Not only was he recognised, apart from his gallantry in war, as one of the finest pilots in the Royal Air Force, but he did great work for Civil Aviation—and whether in Service or civilian flying he was equally beloved by all who knew him.

Before the War 1914-18 Walter Longton was a tester with the Sunbeam Motor Co., Ltd., at Wolverhampton, and a well-known racing motor-cyclist. Thus he acquired that experience of engines which contributed so much to his later success—for no pilot knew better how to handle and humour an engine.

During the War he did highly distinguished service. His name first appeared in the *London Gazette* on the occasion of the King's Birthday on June 3, 1918, when he was awarded the Air Force Cross for service at home. One gathers that this was particularly for the development of high-speed training machines.

In the *Gazette* of November 2, 1918, he was awarded the Distinguished Flying Cross for his leadership of a formation of six scouts on August 22, this being the culmination of good work during seven weeks in which he had brought down seven enemy machines.

On the 8th February, 1919, he was given a bar to his D.F.C. for valuable tactical reconnaissance and gallant ground attacks between September 29 and October 29, 1918. In particular he was mentioned as having attacked an enemy machine-gun nest on October 9, the removal of which permitted an important advance by our cavalry.

In the King's Birthday Honours List on June 3 he was awarded a second bar to his D.F.C. in recognition of general distinguished service during the War.

Everybody having gone down a step after the Armistice, Walter Longton was promoted to Flight Lieutenant on November 1, 1919. He was appointed for Air Staff Duties (Organisation) in the Inland Area in April, 1920, and in October, 1922, he was appointed to the Directorate of Training at the Air Ministry, where he remained till July, 1924.

He was promoted Squadron Leader on January 1, 1924. In July, 1924, he was appointed to command No. 58 Squadron (Vickers Virginias) at Worthy Down, and remained there until October, 1926, when he was appointed to No. 1 Flying Training School at Netheravon.

His career in Civil flying was as interesting in its own way as his Service career. He first came into public notice as the pilot of a Snipe in the Aerial Derby of 1920. He flew in various air races in 1922. And in 1923 on the Wren he tied for the first place for the *Daily Mail* Light Aeroplane Prize at Lympe.

In 1924 on a Sopwith Gnu belonging to Mr. Frank McClean he won the first race for the Grosvenor Cup, which he won again in 1926 on the Blackburn Bluebird.

Apart from that he has flown in practically every race meeting which has been held in the last six years, and in every one he has been equally good as winner or loser.

As a pilot he showed himself to be the complete master of every type of aircraft. So exceptional was his skill that he was selected to give a solo display of trick flying on a Sopwith Camel at one of the early R.A.F. Pageants. His



Walter Longton.



Lawrence Openshaw.

commanding officer Walter Longton was equally capable at the controls of a racing machine, efficient, and he caused efficiency in others. He was almost all ways the ideal officer for the R.A.F.—of the kind of which Sir Hugh Trenchard has so often spoken, that engineer who can fly and command men.

Few men have done so much for the improvement of aircraft. As a test pilot he influenced the design of fighters. As a pilot of light aeroplanes he influenced the design of machines for the private owner and club member. And as pilot of big bombers he influenced also their design and equipment. Every aircraft constructor knew that "Longton's opinion" was worth having on anything new. And he gave freely advice which would have been worth big money had he been a consulting engineer.

He was as beloved by his men as by his fellow-aviators. One had only to watch the wild enthusiasm of the R.A.F. people, whether his own machine crew or any other armee, when he won a race or put up a good show, to realise how highly they thought of him. And their esteem was rather increased by the fact that he made his men work like slaves—and worked with them harder than they did.

Walter Longton may have had enemies, but if he had or never met any of them. Everybody liked him. He and his wife, herself one of the finest of car-drivers, were always the centre of a group of friends at every aerodrome he visited. And yet never was a thoroughly popular man more modest and unassuming. In spite of his vast knowledge of aircraft he was never self-assertive. He never laid down the law on technical matters. He just argued in support of his opinions—and he was mostly right.

His unflinching cheeriness under all conditions, his good nature, his humour, and his real solid knowledge combine to make Walter Longton one of the best beloved and most valuable men in British Aviation. In losing him we have lost one of our greatest aids towards progress in Aviation. And many of us have lost a friend who can never be replaced.—C. G. G.

LAWRENCE OPENSHAW.

Major Lawrence Pratt Openshaw, Flight Lieutenant Reserve Air Force Officers, was the only son of Col. T. H. Openshaw, C.B., C.M.G., M.S., M.B., F.R.C.S., I.R.C.P.

He was an exceedingly able engineer and was well known at Brooklands before the War as a racing motor-cyclist. He

slow rolling and looping has never quite been equalled in neatness and sureness of touch.

Thereafter he became a standing feature of the R.A.F. Pageant. At one he gave a marvellous exhibition of crazy flying on an Avro—in succession to Flt. Lieut. Noakes, the inventor of this trick, who had gone out East. At another he gave an equally marvellous exhibition of air fighting, a Boulton and Paul twin-engined Bugle, against two crack pilots on S.E.5as and defeated them utterly.

By contrast with the flying of the first of the Lympe Meeting, the Wren, designed by Mr. W. C. Manning for the English Electric Co., which had an A.B.C. engine, giving about 7 or 8 h.p., and was (and is) the lightest and lowest-powered aeroplane ever flown. Following that he was appointed conjointly with Squadron Leader Harris to command 58 Squadron equipped with Vickers Virginias, the biggest aircraft in any Flying Service.

As a test pilot, an exhibition pilot, a racing pilot and

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100,000 engine miles without mechanical trouble.

TWICE during the past twelve months I have four aircraft of the Royal Air Force made flights from Cairo to Cape Town and back.

On both occasions Fairey aeroplanes were selected, each fitted with a single Napier Lion engine.

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learned to fly in the early days of the War under Commander Porte at Hendon and joined the R.N.A.S.

During 1916 he was second in command of the Experimental Flight under Squad. Comm. Busted, and transferred thence with Squad. Comm. Busted to the Isle of Grain in 1917. There he was largely responsible for the testing of the emergency flotation gear used on Coastal Patrol aircraft, and he himself did all the preliminary tests for this gear.

Thereafter he was appointed to one of the seaplane carriers to the end of the War, after which he returned to the Test Flight at the Isle of Grain.

After being demobilised, with the rank of major, he went to Italy as chief engineer at the Carrara Quarries. He returned to England about two years ago to become a member of the technical staff of the Westland Aircraft Works. There he took to flying again, and became the firm's test pilot.

Just before Easter this year he married Alice Jean, eldest daughter of Mr. Robert Bruce, the managing director of the Westland Works. To his young widow and her family all will offer their deepest sympathy.—C. G. G.

CLAUDE PLEVINS.

Mrs. Claude Plevins was the younger son of Mr. and Mrs. Plevins, 37, Rutland Gate, London. He was still an undergraduate at Cambridge University.

During the morning he had been in the air as passenger once or twice, as he was very keen on flying. One would describe him as the type usually known as "full out," that is to say, desperately keen on any job on which he was engaged, a type which is unfortunately all too scarce.

He was the younger brother of Mr. St. John Plevins, of the Anglo-American Oil Company. Mr. St. John Plevins joined the aviation branch of the Anglo-American last September, since when he has made many friends in aviation. To him and to his family one extends deep sympathy in their bereavement.—G. D.

FOR PILOTS AND DESIGNERS.

All the way from the Pacific Slope, by Western Air-Express from Los Angeles, Cal., comes an encouraging comment on the recent discussion of aeroplane accidents in *THE AEROPLANE*. Major C. C. Moseley, Vice-President of the Western Air-Express, and himself a pilot of long and wide experience, writes:—

I just want to tell you how I enjoyed your article on "Accidents and their Prevention" in the March 30 issue of *THE AEROPLANE*. It does seem absurd that with the number of accidents in aviation more has not been learned to promote safety. Personally I am completely disgusted when I read frequently that so and so crashed and was killed in such and such an airplane accident, and that one more life, therefore, has been given to the development of aviation.

In a number of cases that have come under my personal observation (I am like everyone else I like to talk of the things that I personally know of) the fact that the pilot was killed was directly due to the stupidity of sometimes the pilot, sometimes the design of the ship and sometimes due to the location, size, etc., of the field.

Being a pilot myself, I am fairly convinced that about 90 per cent. of us have no brains at all, for we all do things occasionally that are ridiculous and unsafe, and are only saved by that good fairy that takes care of fools and dunks.

In the second place, ever since airplanes have been built they have been cracking up, and it would, therefore, only seem logical that our dear old friend the sharp-pencil artist who designs the ships could very easily place the instrument board, cowlings and machine-guns far enough forward in the pilot's cockpit so that it would not be an absolute certainty that the pilot would have his head cracked open every time the ship had even a slight crash.

During the period I was in the U.S. Air Service, April, 1917, to October, 1925, it was my misfortune, and also much against my will, to witness some deplorable accidents and in two cases that came within my limited observation, two different pilots were killed simply because the cowlings directly in front of their faces had not been trimmed out for a matter of twelve to fourteen inches. It certainly is a useless death when a pilot has only a minor crash, and where he is held strictly intact in his seat by the safety-belt, that he should be killed as dead as the proverbial alley cat because some stupid person in charge of design and construction was so sure his airplane would not crash that he refused to move the cowl board a few inches ahead.

With the new and popular steel tubing now in general use in this country it will require a tremendous crash seriously to injure the pilot, as has been demonstrated very satisfactorily several times already over here. Therefore, why is it not common sense to put a little padding around the pilot's compartment in dangerous places, and to keep all the compasses, machine-guns and bolts as far from his face as possible?

Thirdly, if somebody had enough courage and brains to prohibit pilots from flying in and out of inadequate flying fields, we would also have a big reduction in casualties. There are many pilots who have reached the stage where they believe nothing is impossible and therefore the casualty list has a beautiful upward curve.

Really it is quite refreshing to hear someone such as yourself speak their mind and have the courage of their convictions. Certainly a great many publishers hesitate on coming forth with such so-called subjects. More power to you! And I only wish that I could help hit a few of these stupid people with a large blunt instrument.

The problems of accidents and their prevention are analogous in every country that I have come in contact with, and I am convinced that a large number of cases are due entirely to just plain stupidity. Of course we all know that there are times when certain conditions or factors arise that cause fatal accidents which, under aviation as we know it, are practically unpreventable.

The longer I am married and the larger my family becomes, the more imbued I have become with the desire to be an old man with a long grey beard. Therefore, I hope that we may live to see a day when I can hop into a really safe flying machine in Los Angeles and fly all the way to London to shake your hand and tell you that flying is really safe after all.

A FAMILY AFFAIR.

A striking example of the benefits of air travel was given recently when Captain F. von Boenigk, of the Netherlands East Indian Flying Service, was coming home on leave. He and his wife and two small children landed at Marseilles where they joined the mail aeroplane of the K.L.M. line. They left Marseilles at 05.10 hours, reached Dijon at 08.00 hours, had to stop there for an hour and a half, and leaving there at 09.30 reached Rotterdam at 12.55.

This is probably the first time that a whole family has made such a long journey by air in the ordinary course of travelling. This particular family were in fact the first passengers of the K.L.M. route from Marseilles to Holland.

The delay of an hour and a half at Dijon was due to the fact that the French Aerodrome there is so badly equipped. The machines have to be filled up from ordinary petrol cans instead of from a ground-pump or even from a portable Bower tank—which is typical of French lack of organisation.

When you think of that prolonged, boring and dangerous railway journey from Marseilles to Paris, and from Paris through Belgium to Holland, and when you compare it with the idea of leaving Marseilles in the early morning and reaching Rotterdam in good time for lunch, in spite of the delay at Dijon, you begin to perceive that air transport really is some day going to be a commercial proposition.

The machine used on this trip was the ordinary standard K.L.M.-Fokker with a Jupiter engine. The pilot was Mr. Beekman, and the engineer was Mr. Brijnsteijn. The machine carried altogether four adults, two children, sixty kilos of luggage, and over 350 kilos of mail matter—probably most of the Dutch East Indian mail for the week. That is roughly the equivalent of ten grown-up people without luggage of the 450 h.p. Jupiter engine, which is quite a healthy load.

Capt. von Boenigk says that the Jupiter engine ran finely and that the K.L.M. pilots are enthusiastic about it.

THE LIMITATION OF ARMAMENTS.

Speaking at a Conference on the limitation and reduction of armaments organised by the League of Nations Union at the London School of Economics on May 23, Sir Samuel Hoare, Secretary of State for Air, said that the Government realised the great danger of competition in air armaments, which almost daily became more formidable as instruments of destruction.

It was well to realise the peculiar position in which Great Britain found herself from the point of view of air defence. Of all the great countries in Europe we were the most vulnerable of any to air attack. It was a recognition of that fact which made the Government in 1922 embark on a policy of strengthening their air defence, a policy in which each of the succeeding Governments had taken a share. To-day that policy was about half completed. But even so, if they compared the strength of the R.A.F. with the strength of the greatest air force within striking distance of this country, we were still only in the proportion of one to two.

If the striking force of the nearest Great Power within reach could be reduced, say, to 300 first-line machines, there would then be no need for any further extension on our part; indeed, if it could be reduced to a still lower figure then there would be justification for our reducing the small force which we at present possessed.

Lord Thomson said the real force that would bring about an effective change in the present system was public opinion. No delegation going out under the existing system with regard to armaments could hope for much success. They must work to remove the flame of war which burned in our midst, and was not only fed with Budgets, but buttressed with a mass of international law.

THE NATIONAL AVIATION FUND.

A Committee has been appointed to advise the Trustees on the administration of the National Fund for the Promotion of Aeronautics, and the following have consented to serve on this Committee:—Brig. Gen. Lord Thomson of Cardington, Capt. F. L. Barnard, O.B.E., A.F.C., Capt. A. G. Langham, A.F.R.Ae.S., Flt. Lt. G. H. Reid, D.F.C., R.A.F.

In addition to the names published in *THE AEROPLANE* on June 1, the following have given their patronage to the Aviation Ball, in aid of the Fund, which is to be held at the May Fair Hotel on June 30:—

The Marquess and Marchioness of Cholmondeley; The Marchioness of Londonderry; The Lord Riddell; The Lord Ossulton; Viscount Curzon, M.P.; Major the Hon. J. J. Astor, M.P.; the Lady Violet Astor; The Right Hon. Sir Alfred and Lady Mond; Sqdn. Ldr. the Right Hon. F. E. Guest, C.B.E., D.S.O., M.P.; The Right Hon. Neville Chamberlain, M.P. (Minister of Health); the Right Hon. Sir L. Worthington Evans (Secretary of State for War); Sir William Berry, K.C.B.; Mr. Gomer Berry; Sir Harry and Lady McGowan; Sir Connop and Lady Guthrie; Lady (Arthur) Pearson, D.B.E.; Col. H. C. Woodcock, T.D., J.P., D.L. (President of the Bristol and Wessex Aeroplane Club); Lt.-Col. C. E. C. Rabagliati, M.C., A.F.C., Mr. and Mrs. James W. Corrigan; Mrs. Woods-Humphrey; Mrs. Reid; Mr. J. W. Allen; Mr. A. H. Hughes; Mr. L. Graham; Mr. W. Ogden; Capt. Lord Ausley, D.S.O., M.C., M.P., and Lady Aspley; The Lady Margaret Douglas-Hamilton; The Lord Waring; Sir Harry Foster; Mr. Lionel Asprey; Mrs. Hylton Philipson, M.P.



THE 1927 R.A.F. TRANS-AFRICAN FLIGHT.

The four Fairey III F Aircraft with which this flight was undertaken were fitted with FAIREY-REED metal airscrews.

In contradistinction to last year's Cape Flight, when wooden airscrews were fitted, it was not considered necessary to carry spare airscrews on the machines.

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The London Gazette.

May 31.

GENERAL DUTIES BRANCH.—The following Plt. Offs. are promoted to the rank of Flg. Off.:—D. C. K. Walker (Mar. 21); C. S. Horne (Apr. 12.)

The following Flg. Offs. are transferred to the Stores Branch on probation (May 21)—A. E. Evans, D.F.C., G. J. Gaynor, F. E. R. Dixon, M.C.

The following officers are transferred to the Reserve, Class A:—Flt. Lt. G. B. Holmes (May 31); Flg. Off. E. Fulford (May 18).

MEDICAL BRANCH.—Medical Officer, Flt. Lt. E. Bennett is placed on the retired list, and is granted permission to retain the rank of Sq. Ldr. (May 30).

RESERVE OF AIR FORCE OFFICERS.—GENERAL DUTIES BRANCH.—C. W. Harvey is granted a comm. in the General Duties Branch, Class A.A., as a Plt. Off. on probation (May 17); T. H. Worth is granted a comm. in the General Duties Branch, Special Reserve, as a Plt. Off. on probation (May 19).

The following Plt. Offs. on probation are confirmed in rank:—J. H. Gresham (May 26); L. S. Ash (May 30).

Flg. Off. C. K. Robinson is transferred from Class C to Class A (May 23); Flg. Off. G. W. Smart is transferred from Class A to Class C (Mar. 11); Flg. Off. A. B. Roche is transferred from Class B to Class C (May 21).

The following relinquish their comm. on completion of service:—(Apr. 24) R. A. Coulthart (Mar. 11); Flt. Lt. G. N. Humphreys (Flg. Off. E. Bradley (May 27).

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—The following to be Plt. Off.:—No. 603 CITY OF EDINBURGH (BOMBING) SQUADRON.—J. M. Fosbrooke (May 31).

Appointments.

Week ending June 6.

GENERAL DUTIES BRANCH.—Group Captain C. E. H. Rathbone, D.S.O., to R.A.F. Depot, Uxbridge, pending posting 13/5.

Squadron Leaders E. D. Johnson, A.F.C., to No. 9 Sqn., Manston, 10/6. C. E. H. James, M.C., to R.A.F. Depot, Uxbridge, 9/5.

Flight Lieutenant E. S. Goodwin, A.F.C., to No. 480 Flight, Calshot, 13/6.

Flying Officers R. J. Montgomery-Moore, to R.A.F. Station, Duxford, 3/6. J. M. Wyer, B.E., D.S.M., to No. 1 School of T.T. (Apprentices), Halton, 1/6. R. H. S. Spaight, to No. 208 Sqn., Egypt, 11/5. T. H. Perry-Kene, to R.A.F.M.T. Depot, Shrewsbury, 1/6.

Pilot Officers L. H. Smith and C. F. Ashton, 11/5. No. 4 Sqn., S. Farnborough, 11/5. A. Allen, to No. 11 Sqn., Netheravon, 23/5. E. S. Baverstock, to No. 13 Sqn., Andover, 11/5. M. R. Edmondson, to No. 11 Sqn., Duxford, 23/5. I. E. R. Fisher, M.C., to No. 12 Sqn., Andover, 17/5. C. H. Hockley and I. T. Keens, to No. 13 Sqn., Andover, 17/5. A. M. D. Howes, to No. 11 Sqn., Netheravon, 20/5. W. E. P. Johnson and P. G. Lucas, to No. 43 Sqn., Tangmere, 11/5. F. L. Lawrence, to No. 11 Sqn., Duxford, 30/5. L. G. Martin, to No. 100 Sqn., Spitigate, 23/5. A. L. Mortimer, to No. 12 Sqn., Andover, 21/5. B. F. O. Smith, to No. 13 Sqn., Andover, 23/5. K. C. Netherton, to No. 16 Sqn., Old Sarum, 18/5. S. Pritchard-Barrett and H. J. G. E. Proud, to No. 13 Sqn., Old Sarum, 11/5. R. H. C. Taylor and E. L. Burslem, to No. 25 Sqn., Hawkinge, 25/5. E. D. Turner, to No. 25 Sqn., Hawkinge, 23/5. W. R. Baird, to No. 13 Sqn., Andover, 21/5. U. S. Mackay, to No. 12 Sqn., Andover, 24/5. J. H. Leach, to School of Balloon Training, Larkhill, 23/5.

STORES BRANCH.—Flight Lieutenants H. S. F. T. Jerrard, to No. 1 F.T.S., Netheravon, 15/6. W. A. O. Honey and J. V. Mason, to Home Aircraft Depot, Henlow, 21/5.

Flying Officers A. E. Evans, D.F.C., G. J. Gaynor and F. E. R. Dixon, M.C., to Home Aircraft Depot, Henlow, 21/5.

The Birthday Honours.

The following are included in the official list of honours conferred by the King on the occasion of his 62nd birthday.

THE ORDER OF THE BATH.

K.C.B. (Military Division).—Brooke-Popham, Air Vice-Marshal Henry Robert Moore, C.B., C.M.G., D.S.O., A.F.C., R.A.F.

[Air Vice-Marshal Brooke-Popham was appointed to the Royal Flying Corps from the Oxford and Bucks Light Infantry in 1912 and served with the R.F.C. in France from August, 1914, with short intervals, until the Armistice. At the outbreak of War he commanded No. 3 Squadron, R.F.C., and was appointed Deputy Assistant Quarter-Master General to the R.F.C. on Aug. 25, 1914, and G.S.O.1 in May, 1915.

He was awarded the D.S.O. on June 23, 1915, and promoted to the rank of Brigadier-General on July 3, 1915. His other decorations include the Legion of Honour (Croix d'Officier), Nov. 9, 1914; Order of St. Stanislas, April, 1916; C.M.G., Mar. 31, 1919; C.B., June, 1919.

After the War he was Director of Research at the Air Ministry and on Nov. 14, 1921, he was appointed to be the first commandant of the newly formed R.A.F. Staff College at Andover.

He learned to fly on a Bristol Biplane at Brooklands, and was granted the Royal Aero Club Certificate No. 108 on July 18, 1911.

On April 1, 1926, he was appointed to be Air Officer Commanding Fighting Area, Air Defences of Great Britain.]

THE ORDER OF THE BRITISH EMPIRE.

C.B.E. (Military Division).—Cruikshank, Miss Joanna Margaret, R.R.C., Matron-in-Chief, Princess Mary's Royal Air Force Nursing Service.

O.B.E. (Military Division).—Harris, Sq. Ldr. Arthur Travers, A.F.C., R.A.F. Williams, Sq. Ldr. Arthur Trafalgar, R.A.F. Cushion, Sq. Ldr. William Boston, R.A.F.

M.B.E. (Military Division).—Lanman, Flg. Off. Allan, A.F.C., R.A.F. Smith, Flg. Off. Graham Stuart, R.A.F. Whitmore, Flg. Off. Frank Henry, D.S.C., R.A.F. Webster, 4436 Sergeant-Major, 2nd Class, William, R.A.F.

CIVIL AWARDS.

G.B.E. (Civil Division).—Hoare, Lieut.-Col. the Right Hon. Sir Samuel John Gurney, Bt., C.M.G., M.P.

O.B.E. (Civil Division).—Barnard, Franklyn Leslie, Esq. A.F.C., Pilot under Imperial Airways Ltd. Cox, Henry Albert, Esq., Education Officer, Air Ministry. Johnston, Ernest Livingstone, Esq., A.F.C., Assistant Royal Airship Works, Cardington. Penny, Major Rupert Ernest, Principal Technical Officer, Air Ministry. Wolley, Dr. Charles Francis, Esq., Pilot under Imperial Airways, Ltd.

M.B.E. (Civil Division).—Harris, William John, Esq., C. Assistant, Royal Air Force Stores, Kidbrooke. Hooper, Lt. (Retd.) Frederick James, Technical Officer, Royal Aircraft Establishment.

BRITISH EMPIRE MEDAL.

Medal of the Military Division (for Meritorious Service).—Hepple, No. 780 Sergeant (now F.S.) George Wallace, R.A.F. Brown, No. 159387 Cpl. (now Sjt) William Joshua Leslie, R.A.F. Howson, No. 330130 AC.2., William, R.A.F.

AIR FORCE CROSS.

Air Force Cross.—Smart, Sq. Ldr. Harry George, O.B.E. D.F.C. Oddie, Flt. Lt. Gerard Stephen, D.F.C. Pickering, Flg. Off. Ardley George.

AIR FORCE MEDAL.

Air Force Medal.—Lowdell, 157333 Serjeant (Pilot) George Edward.

THE AUSTRALIAN PACIFIC FLIGHT.

Awards in recognition of distinguished services rendered on the recent seaplane flight from Melbourne to the British Solomon Islands and back.

C.B.E. (Military Division).—Williams, Group Captain Richard, D.S.O., O.B.E., A.D.C., Chief of the Air Staff, Royal Australian Air Force.

Bar to Air Force Cross.—McIntyre, Flt. Lt. Ivor Ewing C.B.E., A.F.C., Royal Australian Air Force.

Air Force Medal.—Trist, Cpl. (Acting Sgt.) Leslie Joseph, Royal Australian Air Force.

THE FLIGHT TO DELHI.

The King has approved of the award of the Air Force Cross to Mr. Bernard More Troughton Shute Leete (Flg. Off., Reserve of Air Force Officers), and Mr. Thomas Neville Stack (Flg. Off., Reserve of Air Force Officers), in recognition of the distinguished service rendered to aviation by their recent flight in a light aeroplane from London to Delhi.

A Fatal Accident.

The Air Ministry regrets to announce that as the result of an accident at Easton-on-the-Hill to an Avro Lynx machine of the Central Flying School, Witterton, on May 30, Flg. Off. Horace Miller, the pilot of the aircraft, was severely injured, and died later of his injuries. Flg. Off. Edmund Gwyn Hornern, the passenger in the aircraft, was uninjured.

At the inquest, held at Peterborough on May 31, Flg. Off. Hornern, the passenger in the machine, stated that Mr. Miller had done 350 hours' flying. At the time of the accident he was practising forced landings, and had cut off his engine at 1,500 ft. He misjudged his height from the ground, and stalled the machine.

The Harmonious Air Force.

A demonstration of "Musical Drill in the Air" was given by No. 41 (Fighter) Squadron, R.A.F. at Northolt on June 2. The demonstration was a dress rehearsal for the greatest novelty in the programme for the R.A.F. Display at Hendon on July 2.

No. 41 (Fighter) Squadron is equipped with Armstrong-Whitworth Siskins (Jaguars) and is commanded by Sq. Ldr. F. Sowrey, D.S.O., M.C., A.F.C. It is considered by those who are qualified to judge to be one of the smartest squadrons in the Service, and if the polish on the machines may be taken as evidence of efficiency, it is a shining example to all other Squadrons. And there never was yet a Unit of the Fighting Services in which spit and polish was not the outward and visible sign of every kind of inward and spiritual efficiency.

The demonstration on June 2 was the first rehearsal the Squadron had had with the R.A.F. Central Band (which, incidentally, was protected by a large red flag) and they have still a month of training to put in by which time the performance ought to be very good indeed.

It is on the same lines as the formation flying by Radio-Telephony last year but instead of orders being transmitted, music is transmitted and the Squadron carries out certain evolutions suited to the various tunes.

From the point of view of the spectator this will be an improvement on last year because then it was as difficult to understand the unfamiliar orders as it is for the ordinary person who has had no experience "on the square" to understand the drill instructions of the Sergeant Major.

The Squadron took off to the tune of "I'm an airman," and dropped bombs which bounced to a tune which, personally, one recognised as being the war-chant of the Felix-



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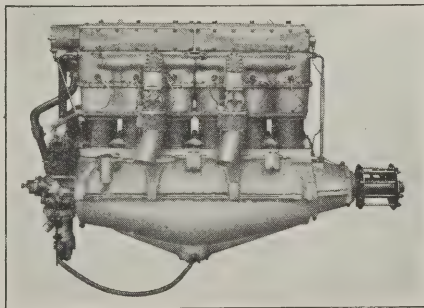
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stowe Rugby team supporters but which one understands is almost a classic in places where people dance.

The Squadron then flew in a small circle in line astern to the music of a bye-gone age concerning a Mulberry Bush.

Thereafter the Squadron then changed formation into Flights astern and each Flight rolled with perfect precision in turn to the obvious tune of "Rolling Home."

It was rather difficult to see what they were doing while the Band played the Anthem of the Ancient Order of Froth-Blowers. Presumably it illustrates the Formation getting "More together" and one hastens to assure the Daily Press that it has no reference to immoderate lubrication on the part of the pilots.

The Squadron then "flew past" to the Air Force March and after a wide sweep round the aerodrome changing formation they came back to "Won't you come home Bill Bailey" and landed.

The pauses between the tunes will probably be filled in by orders given by the Squadron Leader in the picturesque language of Squadron Leaders on these occasions.—C. M. MCA.

The R.A.F. at the Royal Tournament.

Tug-of-War.—R.A.F. Championship (110 stone) Final: R.A.F., Halton, beat Home Aircraft Depot, Henlow, by two pulls to nil. Times: First pull, 1 min. 52 secs.; second pull, 1 min. 12 secs.

R.A.F. Championship (130 stone). Final: Home Aircraft Depot, Henlow, beat R.A.F. Depot, Uxbridge, by two pulls to nil. Times: First pull, 12 secs.; second pull, 17 secs.

Inter-Services Championship (110 stone). Final: Royal Marines, Portsmouth, beat Royal Naval Barracks, Devonport, by two pulls to nil.

Inter-Services Championship (130 stone). Semi-final: R.N. Barracks, Devonport, *versus* Home Aircraft Depot, Henlow. Henlow won the first pull but were disqualified in the second pull for placing their hands on the ground [A spectator states that the Henlow team had very hard luck in being disqualified on what was a technical point. Apparently members of a team are allowed to touch the ground with their hands but not to rest on them, and it was owing to the exceptionally keen judging that the Henlow team was disqualified. In the first pull Henlow pulled the Devonport team out of their famous "lock" for the first time on record.]

In the final the Royal Marines, Portsmouth, beat the R.N. Barracks, Devonport, by two pulls to nil.

The R.A.F. Dinner Club.

The Annual Dinner of the R.A.F. Dinner Club will be held on July 1, the eve of the R.A.F. Display, at the Connaught Rooms, at 8 p.m.

It is hoped that the Secretary and the Under-Secretary of State for Air will be present as the guests of the Club.

Members who wish to attend the Dinner are requested to notify the Secretary at Bentley Priory, Stanmore, as soon as possible, enclosing a cheque for 10s., made payable to the R.A.F. Dinner Club.

All seats will be numbered. Members attending the dinner will apply in the ante-room for sufficient tickets to seat their party and will be issued with tickets corresponding with the numbers on the seats. This will obviate large gaps at the tables, and will enable such members as wish to sit together to do so.

No. 20 Squadron Re-union.

The Annual Re-Union Dinner of No. 20 Squadron will be held at Gatti's on July 2, at 8 p.m.

Application for tickets, 12s. 6d. each, should be made to T. A. Metford-Lewis, Postling, nr. Hythe, Kent.

The Middle East Dinner.

As usual, the Middle East Dinner was a great success. The numbers were a good deal smaller than last year, but that was because Flt. Lt. G. C. Anne was unable to take on the secretarial work and had to hand over to Brig.-Gen. Caddell of Vickers Ltd. so close to the date of the Dinner that General Caddell had no time in which to get properly into harness.

Air Vice-Marshal Sir Sefton Branker was in the Chair, and the guests of the evening were Squadron Leader the Right Hon. F. E. Guest, formerly Secretary of State for Air, and Col. the Lord Gorell, formerly Under-Secretary of State for Air.

Proposing the toast of the Guests, BRIG.-GEN. P. R. C. GROVES remarked how satisfactory it was that the two Ministers who were present had not lost interest in aviation. Each was the leading Air Member in his respective political party, and they were staunch supporters of the R.A.F. He (General Groves) looked forward to the R.A.F. being for the whole Empire what it had proved to be for Iraq, the most efficient instrument of Government. He wanted to see greater acceleration in Civil Aviation, and remarked that no Government would move faster than it was pushed.

SQUADRON LEADER THE RIGHT HON. F. E. GUEST, now Officer Commanding No. 600 County of London Squadron, Auxiliary Air Force, apologised for having lost his voice at a political meeting in Bristol.

He said that he had handed over his real speech to Lord Gorell with whom he had worked in the Ministry.

He said that nobody who had ever worked in the Ministry forgot it. Civilians working there grasped the fact that the R.A.F. was the superior Service. The younger generation must be made to understand that the next war would start in the air. He announced that he himself was going to buy a Moth. Referring to the World's great flights he said that in spite of outstanding individual performances our own aviators were still supreme as a body.

LORD GORELL said that he was there as a casualty of the Party system. He sympathised with Sq. Ldr. Guest on having lost his voice through shouting down a member of his own (Lord Gorell's) party. Anyway, there was no party in the air, so he could make Sq. Ldr. Guest's speech, about which he had been warned that he must be impressive and must be frivolous.

Nobody could be frivolous about the Middle East. He had never been there himself, and all he knew was that in the East a man could raise a thirst. The maps did not show the Middle East, but he had learned that it was the biggest area in the Empire, embracing everything from Egypt to the other side of India.

Sq. Ldr. Guest had asked him, Lord Gorell, to tell the story of how Lieut. McNamara, R.F.C., had got his V.C., and he related how when Capt. Rutherford had to land in Palestine Lieut. McNamara, in spite of being himself badly wounded, had landed alongside to pick him up, how his machine, a Martinsyde, had turned over as he was trying to get off, how he had then gone over to Capt. Rutherford's machine and managed to start it again, thus saving the two of them, while machines from 67 Squadron came down and drove off the hostile cavalry who might have captured them. He was sure that the records of the R.A.F. showed many feats comparable to this.

As to the agitation against the R.A.F. in Iraq, he said that the R.A.F. had saved £25,000,000 in the Middle East Vote, thus enabling us to be the only nation which had put an Allied Mandate into force with economy.

He believed that progress in aviation was not so bad. One could hardly ever see a paper now without paragraphs on aviation, which meant that the editors were gauging public interest.

Referring to Capt. Lindbergh, he said that he was typical of modern youth at its best, modest and efficient. He added that Sir Hugh Trenchard was typical of the Air Force as a whole. Referring to the Chairman, he said that he viewed Sir Sefton Branker's appointment in Civil Aviation with pleasure. Sir Sefton had proved himself to be a perfect amphibian, being equally happy in the air and in office.

AIR COMMODORE BORTON, proposing the Chairman, regretted the small numbers present and accepted himself the responsibility for the short notice given to General Caddell. Flt. Lt. Anne was now in the Bargain Basement and General Caddell was in the Breach, so they had the continuity of the Dinner unbroken. Sir Sefton Branker had just returned from adding another story to the edifice of the air routes which began in the Middle East.

AIR VICE-MARSHAL BRANCKER said that in fact Sir Geoffrey Salmond was the father and mother of the Middle East. Sq. Ldr. Guest as Air Minister had produced him, Sir Sefton, in his civil capacity. The only thing he himself had done in the Middle East was to get aircraft, which had hitherto been lacking, because he knew the ropes in the Air Ministry. He recalled how the Middle East Dinner was always held in Derby week, and how on alternate years it affected the Derby. Obviously any Middle Easter this year ought to have backed Hot Night for a place.

As to the efficiency of the R.A.F. in the Middle East, he said they were so efficient that they were being reduced in numbers, and if they became more efficient they would obviously be abolished. So he suggested that they had better create internal disturbances to make work for themselves.

Referring to Capt. Lindbergh, he said that he represented the best in the Middle West and that those present represented the best in the Middle East. He read a letter of regret from Field Marshal Lord Allenby who had hoped to be present at the Dinner.

Sir Sefton Branker then took up the suggestion made by somebody else that a Middle East Dinner Club should be formed. Certain members of the company retired into a corner and elected officers of the said Club.—Sir Geoffrey Salmond, President; Sir Sefton Branker, Vice-President; Air Commodore Borton, Chairman of Committee; Flt. Lt. Anne, Secretary; and Brig.-General Caddell, Treasurer. All communications for the present to go to General Caddell at Vickers House, Broadway, Westminster. Will all wartime officers who served in the Middle East please communicate with him?

The Lahore to Lypne Attempt.

The Constantinople correspondent of *The Times* in a message dated June 6, states:—

There is still no news of Flying Officer Cocks and Leading Aircraftsman Rowston, who left Konia on May 25 for Constantinople by air. The Turkish authorities are lending every possible assistance in the search for the missing airmen, and *gendarmierie* and patrols are scouring the countryside. The search, however, is most difficult, as since they left Konia nothing has been heard of them.

From Aleppo they flew to Konia, and telegraphed from there that they expected to arrive at San Stefano aerodrome outside Constantinople, within a few hours. They carried no wireless apparatus, and it was expected that they would follow the railway from Konia to Eski Shehr. Expert opinion here is that a search by aeroplanes is the most likely to succeed in tracing the airmen, but this, so far, has not been undertaken.

A letter from Baghdad to THE AEROPLANE dated May 23 states that Mr. Cocks had just passed there making good time.

A South African Non-Stop Flight.

On June 6 Major McIntjes, S.A.A.F., accompanied by Group-Capt. Fellowes, Director of Airship Development, Air Ministry, who is in Africa in connection with the establishment of mooring masts, flew non-stop from Pretoria to Cape Town, a distance of 830 miles, in 7 hours 45 mins.

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—The "Rand Daily Mail," Johannesburg.

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AMERICA TO GERMANY.

The latest trans-Atlantic flight is a curious mixture of comedy and business. The flight was organised some months ago. Mr. Levine, who is described as "a millionaire at thirty," bought the Wright-Bellanca monoplane, the most efficient machine in the world, intending that it should be flown from New York to Paris by Mr. Clarence Chamberlin and Mr. Lloyd Bertaud, two very experienced American aviators.

Just before the machine was ready to start, and before Capt. Lindbergh had started, Mr. Levine fell out with Mr. Bertaud, apparently on the subject of prize-money and movie-rights. Whether Mr. Levine sacked Mr. Bertaud or whether Mr. Bertaud sacked Mr. Levine is not very clear. But anyhow, "the partnership broke up," though happily not, as Kipling has said, "to the melancholy tooting of a six-shot boudoir Krupp."

Then gentle Signor Bellanca, the designer, also chucked in his hand, and Mr. Chamberlin was left on Mr. Levine's. Then Capt. Lindbergh flew the Herring Pond, won the Orteig prize, and took all the shine out of flying to Paris.

Promptly, to their credit be it said, Mr. Levine and Mr. Chamberlin resolved to go one better and fly to Berlin.

Apparently Mr. Levine told nobody, not even his wife, of his intention of going himself. A small crowd at Roosevelt Field watched the machine being got ready at dawn on Saturday, June 4. Just as it was ready to start Mr. Levine climbed into the machine, and everybody, including his wife, thought that it was only a trial flight. The pair left the ground at 06.04, and did not return.

The next that was heard of the machine was that it had passed Cape Race, Newfoundland, at 19.50 hours (Eastern American time).

On Sunday it was sighted by the *Mauretania* at 16.30 hours (British Summer time), 300 miles south-west of Valentia, Ireland. Then it was sighted over Plymouth at 21.10 hours on Sunday, and ultimately it landed at 05.35 hours, Mid-European time, on Monday at Eisleben, about 100 miles south-west of Berlin, having somehow lost Berlin in thick weather.

Taking in petrol at Eisleben, the crew tried to fly to Berlin, but again got on the wrong track and landed at Kottbus, 60 miles south-east of Berlin, where, striking heavy ground, they broke their airscrew and stuck in the mud, apparently without injuring the machine.

There every possible help was given to them by the Luft-hansa people, who sent a Junkers machine over to bring

them to Berlin. However, they preferred to stop by the machine till a new screw could be got. And at the time writing they are still there.

Their actual time in the air was approximately 43 hours and the distance they covered was about 4,400 miles. They apparently they beat Capt. Lindbergh's distance record by about 700 miles. At the time of writing one has not been able to get the exact Great Circle Navigation distance. This may be considerably less. But in any case they are good way ahead of Capt. Lindbergh's record.

According to *The Times*, which is always well informed, Mr. Levine had only done some 75 hours of flying altogether, presumably as a passenger. Before he started he put his affairs in order and disposed of about a million pounds of his will. This all came out afterwards, for Mr. Chamberlin was the only party to Mr. Levine's secret intention of going on the flight himself.

According to one newspaper story, Mr. Levine had, or had the intention of flying to some remote town in Poland, whence his parents emigrated to America some 35 years ago. Judging by photographs of Mr. Levine the story seems based on probability, for, if physiognomy counts for anything Mr. Levine is a typical Polish Jew of the Ashkenazim or Tartar, type—as distinct from the Semitic Jew of Judaea origin. Mr. Chamberlin is typically Anglo-Saxon. His mother was, in fact, born in London, and, to paraphrase "Bartimeus," "He has an aunt wot lives at Sydenham."

So, though our Nordic race can claim the two pilots of these great flights, it rather looks as if the Japhetic peoples commonly and erroneously called Mongoloid, can claim the man who had the pluck to finance the second flight, and the guts to go with it.

It was a pity that the gallant pair did not get to Berlin as Capt. Lindbergh got to Paris. They thoroughly deserve as much acclamation as he received. And Berlin, quite as much as Paris or London, knows how to acclaim its heroes.

So far as the general public are concerned, Capt. Lindbergh has absorbed all the available limelight, and in spite of the extra four or seven hundred miles one fears that the Bellanca's flight will merely be regarded as a good all-round second to that of the Ryan.—C. G. G.

The Bellanca Monoplane.

The Bellanca monoplane is a direct descendant from the first cabin monoplane designed by Mr. Giuseppe Bellanca in 1921. This early machine, fitted with a 90 h.p. Anzani engine, showed a remarkable performance, and succeeded in



THE DURATION RECORD BREAKERS.—Mr. Clarence Chamberlin (in machine) and Mr. Bert Acosta (on strut) and the Wright-Bellanca in which they beat the World's Duration Record in April by remaining in the air for 51 hours. Mr. Chamberlin in the same machine, with the same engine and Mr. Levine, flew from New York to Eisleben at Kottbus in Germany on June 4, 5, and 6.



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winning thirteen prizes for speed and efficiency at various Air Meets in the Western States.

In 1922 a company known as the Roos-Bellanca Airplane Company was formed in Omaha to take over the construction of aircraft of this type, but in 1923, before any headway had been made, Mr. Bellanca left to join the Wright Corporation.

In 1925 the Wright Company built the first Wright-Bellanca monoplane, and this machine, fitted with a 200 h.p. Wright Whirlwind engine, won the Efficiency Trophy at the 1925 National Air Races at New York by scoring 53 per cent. higher efficiency than its nearest competitor.

In 1926 the Wright Company produced the second Bellanca monoplane and this machine won the Efficiency Trophy at the 1926 National Air Races at Philadelphia, with a score of 67.5 points to the 426.8 points of its nearest competitor.

At the same meeting this machine also won *The Detroit News* Trophy, a speed and efficiency competition for aircraft carrying 1,000 lbs. useful load, by putting up a speed of 121.5 m.p.h. and scoring 896 points for efficiency.

On April 12-14, 1927, this identical machine, flown by Messrs. Chamberlin and Acosta, put up a World's Duration Record by remaining in the air for 51 hrs. 11 mins. 20 secs., and when this flight was made the Wright engine had already done over 200 hours' flying in that particular machine.

The same machine was used in the Atlantic Flight, with little or no modification. So it will be seen that it is not an experimental design produced for record-breaking purposes, but is a standard commercial machine.

The wing construction is simple and straightforward. It is built up of two solid spruce spars of "I" section and ribs of spruce, bass-wood and balsa. The two wings are attached to the top of the fuselage by pin joints. The wing is braced externally by two sets of aerofoil-sectioned struts, one on either side of the fuselage.

These struts, which have always been the outstanding feature of the Bellanca monoplanes, run from a point about two-thirds of the half span of the wings to the bottom longons of the fuselage. They contribute to the lift and their dihedral angle adds considerably to the lateral stability of the machine. They are constructed of a single spruce spar and spruce and bass-wood ribs, the leading-edges being covered with plywood and the whole fabric covered.

The fuselage is built in three sections. The nose section consists of a tubular steel engine mounting which can be swung out on hinges or entirely removed by the undoing of four bolts.

The cabin section and also the tail section are built up of chromo-molybdenum steel tubing assembled with simple fittings.

The cabin has seats for five passengers in addition to the pilot and is entirely enclosed. Ample vision is provided by windows in the front and sides of the cabin. The total cabin space, not including that devoted to the pilot, is 140 cubic feet.

The tail section is attached to the cabin section by four pinned joints. The tail unit, including fin and balanced rudder, is constructed of spruce, bass-wood and ash and is fabric-covered.

The undercarriage is of the split type, now almost universally used in America. The normal petrol tanks are carried in the wing roots and have a total capacity of 64 gallons.

For the Duration Record and Atlantic flight an additional tank was installed in the fuselage with a pump feed up to the wing-tanks, the final feed being entirely by gravity.

The 200 h.p. Wright Whirlwind engine is of the same type as fitted to the Ryan monoplane, and an abbreviated description of it will be found under the description of the Ryan monoplane.

Specification of standard machine:-

Span	46 ft. 6 in.	Weight empty	1,850 lbs.
Length	29 ft. 9 in.	Weight of pay load ...	1,025 lbs.
Height	8 ft. 9 in.	Weight loaded	3,454 lbs.
Wing chord	6 ft. 7 in.	Wing loading	17.7 lbs./sq. ft.
Wing area	272 sq. ft.	Power loading	17.2 lbs./h.p.
The following performance data were obtained with pilot, five passengers, 150 lbs. of baggage and full tanks. The total weight of the pay-load was 1,025 lbs.			
High speed (1,800 r.p.m.)	130 m.p.h.		
Cruising speed (1,550 r.p.m.)	110 m.p.h.		
H.p. of Whirlwind engine at 1,550 r.p.m.	125 h.p.		
Fuel consumption at 110 m.p.h.	11 gals. p.h.		
Landing speed	47 m.p.h.		
Rate of climb at set level	930 ft. per min.		
Climb to 5,000 ft	7½ mins.		

A LONG-DISTANCE ATTEMPT.

On June 4 M. Coste and Lieut. Rignot left Paris on a Breguet XIX (500 h.p. Hispano-Suiza engine) in an attempt to regain the World's Distance Record which they held prior to the Atlantic flight of Capt. Lindbergh.

They were forced to land at Nijni-Tagilsk in the Central Urals, 75 miles N.N.W. of Ekaterinburg, by bad weather, after flying for 29½ hours and covering about 3,200 miles.

A FOREST PATROL CONTRACT.

A message from Victoria, B.C., dated April 30, states that the contract for the operation of aeroplanes in the Southern interior for the current year for spotting forest fires, has been awarded to Dominion Airways Ltd., of Vancouver.

As described in the Canadian issue of *THE AEROPLANE* on May 11, "Dominion Airways Limited" was formed in Vancouver, British Columbia, with a capital of \$100,000. Mr. A. L. Dobbin, is the president and general manager, and Capt. W. E. C. Dobbin, who was formerly in the R.C.A.F. and has had much experience of commercial flying with concerns in Eastern Canada, is director of operations.

The purpose of the company is to establish an aerial service for transportation of passengers, an express freight service, and to undertake any survey or photography projects which may come its way.

EASTWARD BY MOTH.

On June 1 Mr. Dennis Rooke, who left Croydon on May 24 in an attempt to fly to India and Australia in a D.H. Moth (30/80 h.p. A.D.C. Cirrus II engine), arrived at Khoms from Malta after a flight of 240 miles over the Mediterranean.

On June 5 he arrived at Aboukir.

THE COST OF SPARES FOR THE JUPITER.

Three Bristol Jupiter VI engines, Nos. J 6071, 6072, and 6074, fitted to the Handley Page Hampstead G-EBLE in the service of Imperial Airways were recently subjected to a "top overhaul" at the end of 250 hours of running. During this period the three engines gave no trouble of any kind and did not require to be touched.

On examination of the engines the following parts were found to be worn and to require replacement:—4 Piston rings (cost 2s. 3d. each, total 9s.), 2 Scraper rings (3s. 9d. each, total 7s. 7d.), 1 outer valve spring (1s. 3½d.), and 14 inner valve springs (1s. 1½d. each, total 15s. 9d.). The total cost of all these replacements was £1 13s. 7½d.

In addition to these partially worn parts there are a number of parts which are invariably replaced when assembling an engine after overhaul. These are such things as washers, gudgeon-pin clips, packings, split-pins and the like. The cost of these inevitable replacements for the three engines came to £12 7s. 4½d., or nearly eight times that of the worn working parts.

The total cost of just about £14 for spares for three engines for approximately 25,000 miles flown works out to 1.34 pence per mile, or at the rate of about 7½ miles per penny, for 1,350 h.p.—that is the really remarkable point.

This can only be regarded as an amazingly good figure, and shows how exceedingly little wear and tear takes place in a really well-designed modern aero-engine.

As bearing on this point it is recorded that the maximum wear on any one of the twenty-seven gudgeon-pins of these three engines had reduced the diameter of that pin to one-thousandth of an inch below the nominal diameter. As a manufacturing limit of minus half a thousandth is allowed on new pins the actual wear may have been appreciably less than one thousandth. No less than six of the gudgeon-pins showed no measurable wear.

It would seem that the limit of 250 hours between overhauls adopted in the case of the Jupiter is distinctly on the safe side, and that an appreciably longer life in service could be obtained from this engine without running any risk.



THE BELLANCA MONOPLANE (200 h.p. Wright Whirlwind engine) on which Messrs. Chamberlin and Acosta made the World Duration record of 51 hrs. 11 mins. 20 secs., and on which Messrs. Chamberlin and Levine flew from New York to Eisleben, Germany, in 43 hours, without a stop.

AIRCRAFT

OF ALL TYPES.



THE "HORSLEY."

"Flight" Photo.

The Hawker Horsley was selected, after exhaustive tests, as the R.A.F. Standard Day Bomber, once again demonstrating the efficiency of Hawker design and construction.

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CAPTAIN LINDBERGH'S BUSY VISIT.

Captain Charles Lindbergh was received by the King on May 31 at Buckingham Palace and decorated with the Air Force Cross. He was later received by the Prince of Wales at York House.

On the previous day, May 30, Captain Lindbergh had paid an early visit to Croydon to examine his machine.

During the morning he attended a service at St. Margaret's, Westminster, in commemoration of the officers and men of the U.S. Army who are buried in the British Isles.

On the same day, May 30, he was the guest of honour at a private lunch given by the American Ambassador at the American Embassy. The other guests included:—

Sir Austen Chamberlain (Secretary of State for Foreign Affairs), Sir Samuel Hoare (Secretary of State for Air), the Duke of Atholl (President of the Royal Aero Club), Lord Reading, Lord Desborough, Lord Astor, Sir Philip Sassoon, Marshal of the R.A.F. Sir Hugh Trenchard, Air Vice-Marshal Sir Sefton Branner, Vice-Admiral Aubrey Smith, Sir Alan Cobham, Sir William Berry, Mr. Esmond Harmsworth, and Lieut.-Col. W. A. Bishop, V.C.

In the evening he was the guest of honour at a dinner given by the Association of American Correspondents in London in the Abraham Lincoln Room of the Savoy Hotel.

On May 31 Capt. Lindbergh flew his machine from Croydon to Gosport, to be there packed for transport to America. He was escorted by a Bristol Fighter and a Hawker Woodcock belonging to the R.A.F. He started from Croydon at about 05.30 hrs. He flew back to Croydon in the Woodcock.

After he had been received by His Majesty the King and the Prince of Wales, as stated above, Capt. Lindbergh was entertained to lunch at Claridge's by the Air Council. The Secretary of State for Air presided, and the other guests included:—

Air Council.—Lieut.-Col. The Rt. Hon. Sir Samuel Hoare, Bt., C.M.G., M.P., Sir Philip A. C. D. Sassoon, Bt., G.B.E., C.M.G., M.P., Marshal of the R.A.F. Sir Hugh M. Trenchard, Bt., G.C.B., D.S.O., Air Vice-Marshal Sir John F. A. Higgins, K.B.E., C.B., D.S.O., A.F.C., Sir Walter F. Nicholson, K.C.B.

Air Ministry and Royal Air Force.—Air Marshal Sir John M. Salmond, K.C.B., C.M.G., C.V.O., D.S.O., A.D.C., Air Vice-Marshal Sir John M. Steel, K.B.E., C.B., C.M.G., Sir Sigmund Dannreuther, C.B., Air Vice-Marshal Sir W. Sefton Branner, K.C.B., A.F.C., Sir Geoffrey Butler, K.B.E., M.P., C. Ll. Bullock, Esq., C.B.E., Air Commodore C. I. N. Newall, C.M.G., C.B.E.

Ex-Secretaries of State and Under-Secretaries.—Brig.-Gen. The Rt. Hon. The Lord Thomson, G.B.E., D.S.O., The Rt. Hon. The Lord Weir of Eastwood, Sq. Ldr. The Rt. Hon. F. E. Guest, C.B.E., D.S.O., The Lord Gorell.

American Embassy Staff.—Frederick A. Sterling, Esq., Boylston A. Beal, Esq., Ray Atherton, Esq., Capt. William C. Watts, U.S.N., Lieut.-Col. Kenyon A. Joyce, U.S. Army, Lieut.-Commander R. D. Kirkpatrick, U.S.N., Maj. Hubert H. Harmon, U.S. Army (Air Corps.).

Baron E. F. Palmstierna, G.C.V.O., Capt. W. Brass, M.P., Sir Charles Wakefield, Rear-Admiral M. F. Sueter, C.B., R.N., M.P., Sir Richard Glazebrook, K.C.B., M.A., etc., T. O. M. Sopwith, Esq., C.B.E., E. E. Beare, Esq., C.B.E.,

Proposing the health of Capt. Lindbergh, Sir Samuel Hoare said that they were there on behalf of His Majesty's Government and Air Council to welcome and congratulate a great pilot and pioneer of the air.

Capt. Lindbergh was only 25 and it was four years ago that he had learned to fly. He had spent two years on the trans-American airway and must have flown thousands of miles. He was a veteran member of the Caterpillar Club, the most exclusive Club in the World for its membership was restricted to pilots who had saved their lives by parachute descents.

Capt. Lindbergh's great flight had constituted a World's Record and placed him in the foremost rank of the pioneers of the air. For courage, for enterprise and for high adventure there were no national frontiers. We offered him as sincere congratulations from Great Britain as any he would receive from his fellow-countrymen in the United States.

The British people had taken a special interest in the flight because two officers of the Royal Air Force, Sir John Alcock and Sir Arthur Whitten-Brown had been the first pilots to make a non-stop flight across the Atlantic eight years ago. He asked the company to remember the gallant but tragic attempt made by Capt. Nungesser and Monsieur Coli, who, though they had failed, had met their death in a great adventure.

These long-distance flights were of great technical value. They stimulated progress and tested reliability. Capt. Lindbergh's experience was not only a testimony to his great skill as a navigator but was also a lesson of great value in the study of aerial navigation.

During the afternoon Capt. Lindbergh visited the Houses of Parliament as the guest of Lord and Lady Astor, and had tea on the Terrace.

The Air Associations' Banquet.

On May 31 Capt. Lindbergh was entertained to dinner by the Royal Aero Club, the Royal Aeronautical Society, the Air League of the British Empire and the Society of British Aircraft Constructors at the Savoy. The Royal Aero Club may not be able to run race meetings, the Royal Aeronautical Society may not be able to help the progress of British aeronautical science, the Air League of the British Empire may not inspire air-mindedness and the S.B.A.C. may not be able to get all the orders it wants at home and abroad, but in combination they can put up a very good party. But that, one believes, is largely due to the entertaining Chairmanship of Lord Thomson and the able staff-work of Messrs. Harold Perrin and Bernard Stevenson, of the Royal Aero Club.

After the usual toasts of the King, the Queen and the Rest of the Royal Family, and the President of the United States, LORD THOMSON proposed the health of the Guest.

He said that Capt. Lindbergh had probably learned more about himself from the papers recently than he had ever known before. Unlike Byron, who woke to find himself famous, Capt. Lindbergh had kept awake for about sixty-one hours and made himself famous. As a guest he had the advantage of speaking the language of his hosts, to which language an American writer had referred as being that of the proud and melancholy races who aspire. Certainly Capt. Lindbergh aspired.

What really appealed most about him was the human touch. He was a man in every sense, young and modest.

He was something of a miracle. One usually became vainer as time went on. Capt. Lindbergh had been exposed to the full blast of publicity and praise quite suddenly. But he was still more deeply interested in the progress of aviation than in anything else. In honouring him we did ourselves honour.

SIR PHILIP SASSOON said that whatever impression our guest had, he would not think us unenthusiastic. Paris, Brussels and London had vied with one another. We had left our Allies far behind. Croydon, as Capt. Lindbergh had said, was worse than Paris. The perils of the Atlantic were less than he had endured since in endeavouring to take his machine back in one piece.

But Capt. Lindbergh had been a provocation to a country which esteemed courage and skill. And he still had his own countrymen to face. He must pay the penalty of being great. None would grudge fame to such modesty. The flight was a triumph for World-wide peaceful civil aviation.

He, Sir Philip, had been asked by the aircraft constructors of Great Britain to pay a tribute not only to Capt. Lindbergh but to the technical perfection of the whole undertaking. For years the performance would stand out as an exceptional



THE SPIRIT OF ST. LOUIS.—Captain Charles Lindbergh's Ryan Monoplane (Wright Whirlwind).



THE IDEAL LIGHT AEROPLANE

The Widgeon III is a very strongly built and substantial light aeroplane and there is nothing flimsy about it and it is particularly suitable for real hard work. The machine carries passenger, pilot and about 50 lbs. of luggage. The engine is the well-known Cirrus Mark II, or the Armstrong-Siddeley "Genet." Being a parasol monoplane there is a most excellent view for both pilot and passenger in a downward direction, making the machine ideal for patrol or survey work.

In addition the wings are braced with struts and consequently there is no chance whatever of the rigging getting out of true and needing skilled attention. The passenger's entrance

is through a door in the side of the fuselage and he has a very roomy cockpit. The aeroplane can be supplied with dual control. The machine is economical to run, the petrol consumption being approximately 20 miles per gallon, and the oil consumption is about one pint per hour. The overall dimensions of the machine when folded are only 8 ft. 6 ins. high, 10 ft. 6 ins. wide, and 23 ft. 1 in. long.

All machines are furnished with an aerobatic certificate of Airworthiness for a total weight of 1,400 lbs., which allows for passenger, pilot and luggage, while the total weight can be increased to 1,600 lbs. without exceeding the permissible load for normal factor of safety.

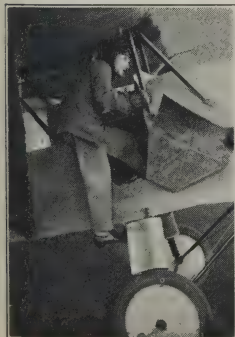
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View of the easy entrance to the passenger's cockpit.

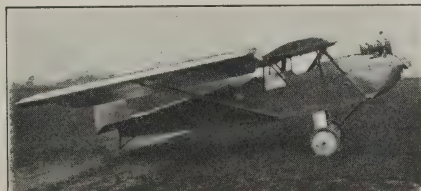


Illustration of the way in which the Wings fold back.

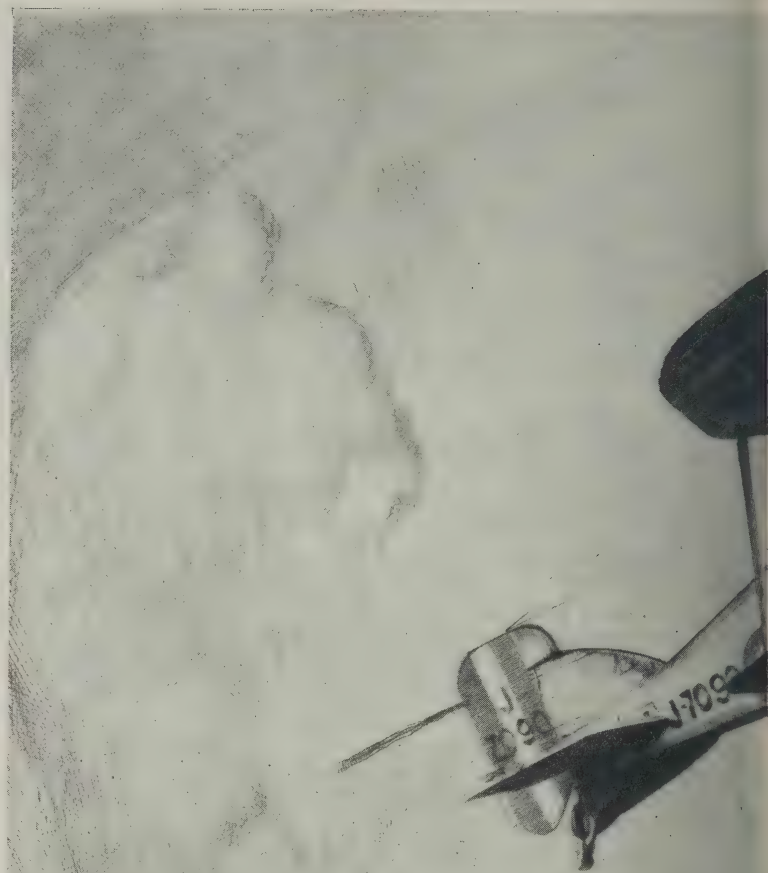


View of Engine Installation.

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Record Climb
19,500 ft. in 11
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Cutting from "Daily Telegraph," May 27th, 1927.

R.A.F. SQUADRON RACE.

SASSOON CUP RESULT.

BY OUR AVIATION CORRESPONDENT.

Nine single-seater fighter squadrons of the Home Defence Air Force, each represented by the pilot who has been victorious in a 100-miles cross-country race in competition with the other members of his squadron, were matched against each other yesterday in the final for the cup offered by Sir Philip Sassoon, Under Secretary for Air. The race was flown over a triangular course of 109 miles, starting from Northolt Aerodrome, and going to Duxford, in Cambridgeshire, thence to Halton, and back to Northolt. The squadrons engaged were No. 3, Flying Officer P. Cranswick, M.C., on a "Woodcock"; No. 17, Flight Lieutenant F. L. Pearce, on a "Woodcock"; No. 19, Flying Officer P. P. Grey, on a "Grebe"; No. 23, Flying Officer H. W. B. McDonald, on a "Gamecock"; No. 25, Flying Officer L. E. Maynard, on a "Grebe"; No. 29, Flying Officer W. A. Tattersall, on a "Grebe"; No. 32, Pilot Officer A. H. Montgomery, on a "Gamecock"; No. 41, Pilot Officer H. T. Andrews, on a "Siskin"; and No. 43, Flight Lieutenant A. C. Collier, on a "Gamecock." The "Gamecocks" and "Woodcocks" were engaged by the 450 h.p. Bristol Jupiter, and the "Grebes" and "Siskins" were fitted with the Siddeley "Jaguar" 375 h.p.; both engines are air-cooled.

The nine machines, each with its distinct Squadron marking, made a pretty field, and a race of machines of the fighter class, each piloted by an officer who has come out first in elimination tests, provided an impressive spectacle which lost nothing through being entirely free from "incidents." The machines were handicapped according to type, the three "Gamecocks" (scratch) conceding 1 min. 42 sec. to the "Grebes," a little more to the "Siskin," and 2 min. 50 sec. to the two "Woodcocks." They were started at handicap intervals, so that the first home would be the winner. The race was held in perfect conditions, a blue sky and a warm sun, but a little wind would have been welcome; not that these machines have any difficulty in the take-off, even in a calm.

The pilots had to fly the course at a minimum altitude of 2,000 ft., but on coming in to the finishing line swept low over the aerodrome boundary. And the finish was remarkably close as between the first two, Pilot Officer Montgomery (No. 32) leading Flight-Lieut. Collier (No. 43) by no more than 150 yards (or about one second). These were both on "Gamecocks." The third man in, Flying Officer McDonald (No. 23), was also on a "Gamecock." Thus the three scratch machines overtook and passed the "Woodcocks," the "Grebes," and the "Siskin," to which they had conceded various time allowances. The fourth home was Pilot Officer Andrews on the "Siskin." The winner's time over the course was 42 min. 27 sec., an average speed of 156 miles per hour.

Air-Marshal Sir John Salmond, commanding the Home Defence Air Force, and Sir Philip Sassoon were among the spectators, and they congratulated the winner on his fine performance. This contest arouses keen Service rivalry and is of a very useful character, bringing out navigation and piloting ability, and also proving the efficiency of all ranks and of the general mechanical staffs. Last year the cup was won by No. 41 Squadron in a map-reading test for single-seater fighters.

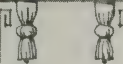


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exploit. Our admiration had been stirred in appreciation of the singularly spectacular result of the flight. Napoleon had done much, but he had never taken London by storm.

MARSHAL OF THE ROYAL AIR FORCE SIR HUGH TRENCHARD said that the Air Force knew what Capt. Lindbergh's flight meant. He quoted an R.A.F. pilot as saying that Capt. Lindbergh stood in the front rank of born airmen. He hoped that he would be as successful in his fight for aeronautical progress as in his great flight. The Royal Air Force took off its hat to him.

CAPT. LINDBERGH said that he was not able to thank everybody for his reception. He certainly had learned a lot about himself from the papers. He then said that probably those present, being interested in aviation, would be interested in some of the points about the flight. [Capt. Lindbergh apparently did not realise that the Modock is as prevalent in England as it is in the States, and that a large number of those present take no interest in aviation except when there is a spectacle in view.—C. G. G.]

Continuing, Capt. Lindbergh said that three-and-a-half months ago a group of business men in St. Louis decided to build a ship to fly the Atlantic. Two months afterwards the ship was built. They decided on a single engine as it meant greater range than could be got by any multiple-engined ship. And they decided on a single pilot because that meant the ability to carry more gas.

As to the navigation of the flight, he said that the fact that they (meaning his machine and himself) reached the coast three miles from the desired point was not due to luck. It was pure coincidence. He had reckoned on being twenty-five miles out either way. But the wind happened to hold in the right direction.

If they had been three hundred miles out North or South they could still have reached Paris with the gasoline they carried. If they had been further out and had struck Sweden or Spain they would still have been in no danger, though they could not then have reached Paris.

The weather reports which he had got were not complete. There were very few ships on the true Great Circle course. They could only get reports from a station in Greenland and from boats on the shipping lanes. The forecast for Nova Scotia was bad, but it was better than was predicted. But they found some local storms and flew for an hour at a time through rain and fog. And at the end of Nova Scotia they found snow and ice.

Over Newfoundland there was dense fog, but it was clear over St. Johns. After that there was a storm area below 8,000 feet. For the first two hours they flew in the dark before the moonrise.

At dawn they found clouds up to 15,000 feet, and the machine collected moisture which froze and added to the weight. So they came down to below the clouds which made a ceiling at 200 feet. Then they flew for several hours through fog, navigating solely by instruments,—the Pioneer

Earth Inductor Compass, and the inclinometer. This fog was entirely contrary to the weather forecast. [This statement produced considerable laughter, for the Meteorological Office is still regarded as a joke, in spite of the good work which it really does.]

All the way across they only met one boat till about seventy-five miles from Ireland, when he saw a few small fishing boats. When they were clear of the fog they came across clouds which gave them a horizon looking exactly like land complete with trees and everything except buildings, and he imagined it must have been a mirage. After reaching the coast of Ireland the going was very decent.

He ended by saying that he was willing to give anybody full particulars about anything concerning the machine or the flight. There was nothing about it to conceal.

LORD THOMSON then proceeded to present to Capt. Lindbergh a very handsome Gold Cup presented by *The Daily Mail*, and related how nineteen years ago Lord Northcliffe saw Wilbur Wright flying at Le Mans and was at once convinced of the great future of aviation. Thereafter Lord Northcliffe had offered substantial prizes for outstanding exploits in aviation, and *The Daily Mail* had presented in all £50,000 in prizes for aviation.

He recalled that the late Sir John Alcock was the first man to cross the Atlantic non-stop and announced that his companion, Sir Arthur Whitten Brown, was with them that night.

He also recalled that when Alcock landed in Ireland he remarked that the Atlantic might not be crossed by air again for a generation, which showed that experts were frequently wrong. In his (Lord Thomson's) experience he had found that experts were good servants but bad masters.

THE SWEDISH MINISTER, BARON PALMSTIERNA, asked to whom did Capt. Lindbergh belong? By the laws of Nature he belonged to Sweden. He had himself posed this question to the American Ambassador, whom he met in one of those drawing-rooms in which they spent most of their time at this time of the year. In a most charming manner the American Ambassador had put up no defence.

He said that the Swedes felt proud of Lindbergh and were impressed by his simplicity and modesty. He invited Capt. Lindbergh to Sweden in the name of the Province which his grandfather had represented in the Swedish Parliament, and said that he had a message for Capt. Lindbergh from his aunt in Sweden.

He was proud to think of Capt. Lindbergh as a bond with the English-speaking World which had such a large proportion of Nordic blood. [Cheers for the Nordic blood, especially from regular readers of *THE AEROPLANE*.]

SIR FRANK McCLEAN proposed the health of Lord Thomson, "Our extraordinarily able Chairman."

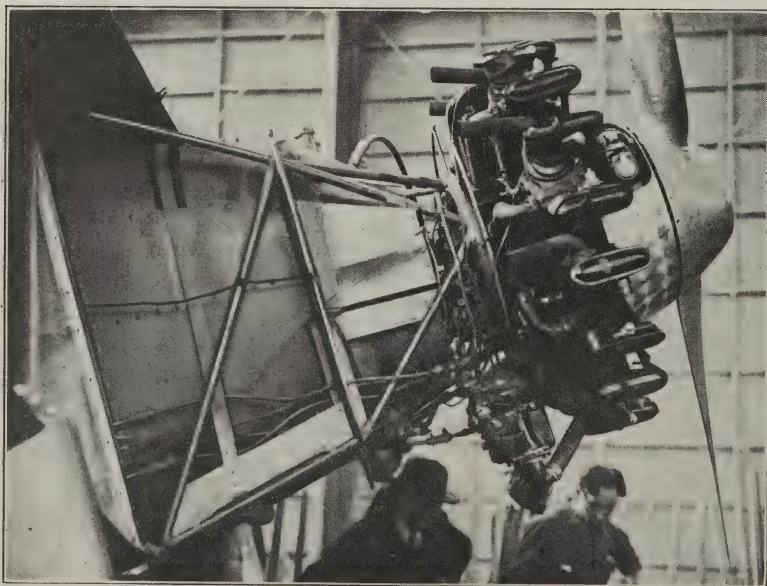
LORD THOMSON, rising again, announced that this was positively his last appearance, and referring to Capt. Lindbergh's nationality, said that if ever there was 100 per cent. American it was him.

Whereupon the audience reminded him vociferously that he should have said "he." Evidently *THE AEROPLANE* is doing good in directions apart from aviation, though hitherto a course in good manners has not been included.

After which the gathering dispersed to further amusement in quite a happy frame of mind.

Altogether it was a mighty good show and a vast improvement on many other gatherings at which a succession of long speeches have produced acute mental as well as bodily indigestion.

Everybody present was charmed by Capt. Lindbergh's



THE POWER-PLANT.—The Wright Whirlwind and its attachment to the Ryan Monoplane.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

absolutely unspoiled simplicity and modesty. He said not a word about his own part in the show. And the way he talked of his machine and himself as "We" impressed everybody with the character of the man. May he live long and prosper exceedingly is the sincere wish of everybody concerned with British Aviation.—C. G. G.

HAIL AND FAREWELL.

On June 1 Capt. Lindbergh went to see the Derby as the personal guest of Lord Londsdale.

In the evening he was the guest of the American Society, the American Chamber of Commerce, and the American Club in London at the Savoy Hotel.

Those present included:—Lord Shaw of Dunfermline, Lord Queensborough, Lord Astor, Lord Thomson, Mr. Frederick A. Sterling (American Chargé d'Affaires), Mr. Ray Atherton (First Secretary, American Embassy), Mr. Francis E. Powell (President of the American Chamber of Commerce), Mr. Wilson Cross (President of the American Club), Capt. W. C. Watts (American Naval Attaché), Lieut.-Col. Kenyon A. Joyce (American Military Attaché), Col the Master of Sempill, Canon Carnegie, the Dean of Windsor, Sir Charles Wakefield, Lieut.-Col. W. A. Bishop, V.C., Mr. T. P. O'Connor, M.P., Air Vice-Marshal Sir Sefton Branner, Lieut.-Col. Moore-Brabazon, M.P., Mr. Walter Morgan, Major H. O. D. Segrave, Sir Harry Brittain, M.P., Mr. H. Gordon Selfridge, Sir Alan Cobham, Maj. Evelyn Wrench, Mr. Paul E. Derrick, Mr. Elliott Wadsworth, Mr. Wilson Taylor (representing the Pilgrims), Sir John Henry, Mr. L. G. Sloan, Sir Bruce Bruce-Porter, and Dr. Philip Franklin, and other representatives of the Inter-State Post-Graduate Assembly of America.

On June 2 Capt. Lindbergh attended a quiet lunch party given by Mrs. Houghton at the American Embassy.

The guests included Air Commodore C. L. N. Newall, Deputy Chief of the Air Staff, Air Commodore A. M. Longmore, R.A.F., and Colonel the Master of Sempill.

After lunch Capt. Lindbergh went to Croydon Aerodrome, where the pilots of Imperial Airways presented him with a memento of his visit to England.

Arrangements had been made for him to fly to Paris from

Kenley, but the start had to be postponed owing to fog in the Channel.

Capt. Lindbergh left Kenley for Paris on June 3. Before leaving he wrote the following letter to the Chairman of the Royal Aeronautical Society:—

American Embassy, London, 2nd June, 1927.

Dear Colonel the Master of Sempill,—I am writing to you as Chairman of the Royal Aeronautical Society in an endeavour to express my thanks for the overwhelming and generous reception I have received from the people interested in aeronautics in England.

Through you and the Governing Council of the Royal Aeronautical Society I should like to take this opportunity of thanking not only the Society but those other bodies which together govern the field of British Aeronautics—The Royal Aero Club, The Air League of the British Empire, and The Society of British Aircraft Constructors.

All four bodies have shown such great interest in my flight, and given me personally such a welcome on the occasion of my all-too-brief stay in this country, that I feel convinced that the bond of aviation is binding Great Britain and America more closely together than ever before, and that it will strengthen with the years to come.

The spontaneous sincerity of your welcome makes me hope that in the not very distant future I may be able to revisit your Country and renew the all-too-brief acquaintanceships.

Yours sincerely,

(Signed) CHARLES A. LINDBERGH.

Capt. Lindbergh arrived at Le Bourget on June 3 in a Hawker Woodcock lent by the Royal Air Force.

On Saturday he flew from Paris to Cherbourg in a Breguet XIX as passenger with Capt. Weiss.

Later in the day he left Cherbourg on board the U.S.S. *Memphis* for Washington, where he will face his countrymen.

THE RYAN TRANS-ATLANTIC MONOPLANE.

During the course of his speech of welcome to Capt. Lindbergh delivered at the Savoy Banquet on May 31, Lord Thomson suggested that it was quite possible that Capt. Lindbergh had learned quite a lot about himself and his machine from the amount of material that had been published in the daily press. While this may be true concerning non-technical details, so far, very little has been published about the machine, engine, accessories and fuels.

THE RYAN MONOPLANE.

The Ryan monoplane was designed by Mr. Donald Hall and built by Ryan Airlines, Inc. of San Diego, California, and is essentially a modification of the Ryan M-1, produced by this company in 1925, as a light mail and passenger monoplane, demanding a comparatively small overall size with a high pay-load capacity and a high cruising speed together with moderate first cost, low depreciation and economical operation.

The fuselage which is slightly longer than that used on the M-1 is built up of welded seamless steel tubing with no wire cross-bracing. The top rails of the fuselage are straight up to the leading edge of the plane, after which they slope sharply down to the engine mounting. The plane is attached direct to the fuselage and is braced by two sets of parallel streamlined steel tube struts, one on each side, to the bottom rails of the fuselage.

The undercarriage is of the split type, the vertical legs, embodying the shock absorbing members, being attached to the front wing bracing struts. The points of attachment of these vertical legs are

braced to the fuselage by one strut running up to the top longerons and a small strut running back to the bottom longeron to a point midway between the points of attachment of the wing bracing struts. The undercarriage is completed by two Vees, the front legs of which form the axles, which are hinged to the bottom rails of the fuselage.

The wing is of wooden construction and is built up of "I" section laminated spruce spars and built-up spruce and plywood ribs, the whole being covered with fabric and doped with Titanine. All the control surfaces are on frames of steel tubing.

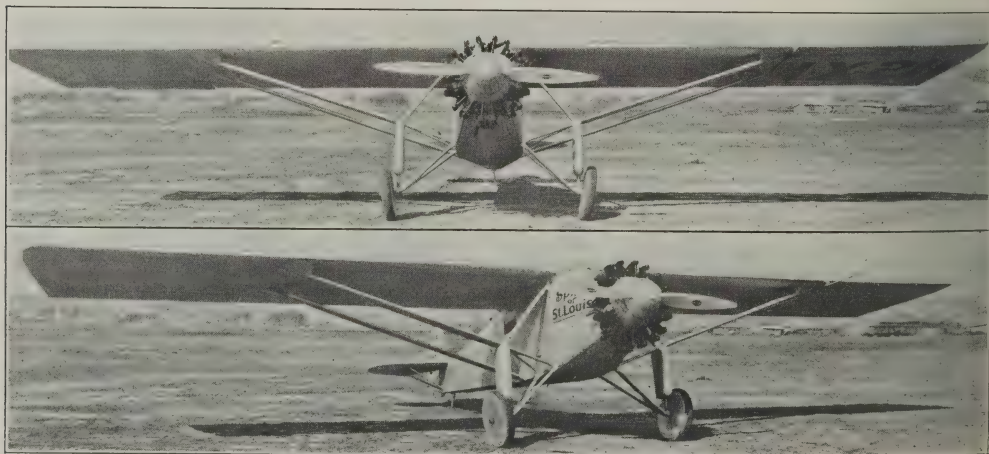
The ailerons of small span and chord are set into the trailing edge some distance from the wing tip and judging from their very large movement in comparatively mild manoeuvres they would appear to be rather on the small size.

The pilot's seat is situated behind and below the rear wing-spar completely inside the fuselage.

Illumination is provided from above by a window in the roof of the cabin and ventilation is provided by the fuselage in the starboard leading edge fresh air coming in through the wing into the upper part of the cabin.

On either side of the pilot's head are two windows and in front is the instrument-board. Let into the instrument board is a periscope which projects out of the port side of the fuselage. This can be extended or withdrawn by a knob let into the dashboard.

The magnetic compass is mounted in front of the dashboard, the compass card being reflected into a small mirror at the top of the dashboard and in line with the pilot's eyes. Below this mirror is the Pioneer Inductor Compass indicator, which shows any deviation from



THE RYAN MONOPLANE.—Front and three-quarter front views.

TITANINE

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the course set on the Controller, the latter being mounted on the right-hand arm-rest of the pilot's seat.

The Inductor Compass generator is in the fuselage behind the pilot's compartment and is driven by a four-cupped windmill.

Immediately below the instrument board is the petrol control system. The location of the other instruments can be seen in the accompanying photographs.

The aerodynamic controls are normal. There is direct elevator control by cables from the control-column itself.

Aileron control is by means of cables running from rocker arms on the fore-and-aft tube up to the back spar, where they pass over pulleys out to the ailerons.

The rudder control is by means of two independent swinging steel tube loops which are coupled direct to the respective rudder blotters by means of cables. These can be seen in one of the photographs.

On the left hand side of the pilot are the engine controls and the tail incidence gear lever and on the right is seen a hand pump for blowing up an emergency flotation bag and collapsible raft of rubberised fabric, which, together with seat cushions and a number of other small portions of the machine and its equipment, was "lifted" by souvenir hunters on its arrival in Paris.

Immediately behind the engine bulkhead is the 27 U.S. gallon oil tank. Behind this are two petrol tanks in tandem, holding 86 and 209 U.S. gallons, respectively. In the centre-section is one tank holding 38 U.S. gallons and on either side of this tank, in the wings but outside the lines of the fuselage, are two tanks, each holding 58 U.S. gallons. The total normal capacity of the five petrol tanks is 449 U.S. gallons, although the machine actually took off in New York with 451 U.S. gallons.

On the sixtieth day after construction was begun, the machine was flight tested and its performance was fully up to expectations. Its cost is stated to have been \$12,500 (approx. £2,500).

THE WRIGHT WHIRLWIND ENGINE.

The Wright Whirlwind 7-5 engine is a nine-cylinder radial air-cooled engine with a bore and stroke of 4.5 by 5.5 inches.

The aluminium alloy crankcase is in four sections, the front section carrying the two Scintilla magnetos and the valve timing devices the intermediate section carrying the valve tappets and push rod housings, the main section carrying the cylinders, intake distributor and crankshaft bearing, and the rear section the petrol pump, the oil feed and scavenger pumps, oil strainer and tachometer drive.

The cylinders are of forged steel and are screwed and shrunk into the heat-treated cast aluminium heads which have shrunk-in aluminium bronze valve seats.

The valves are tulip-shaped of a special alloy steel. The exhaust valve is salt-cooled and three springs are used for each valve.

The intake valve guides are of aluminium bronze and those of the exhaust valves are tungsten steel.

The valve operating gear is entirely enclosed and is lubricated by crankcase oil vapour and the Alemite pressure system.

The valve rockers have case-hardened steel rollers and the tappets have roller cam followers.

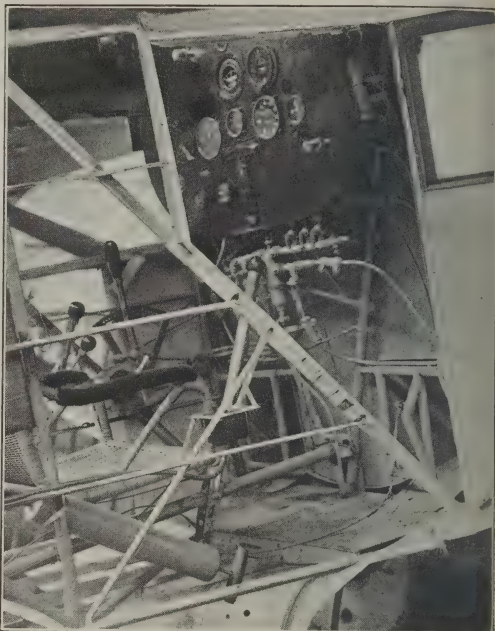
The pistons are of heat-treated aluminium alloy with gudgeon pins of the full floating type with aluminium end plugs.

The valve cam is of steel and aluminium and rotates at one-eighth crankshaft speed in the opposite direction.

The crankshaft is a heat-treated alloy steel forging of the single-throw type upon bronze counter-weights and runs on special ball bearings.

Ignition is by two separate Scintilla magnetos each firing one sparking plug in each cylinder. The magneto couplings include a simple positive timing device.

The carburettor is a Stromberg, type NAT-4, with three venturis, each feeding a group of three cylinders. The vaporising chamber is surrounded by an oil chamber connected with the oil return pipe which in addition to warming the mixture and assisting vapourisation acts as an oil cooler.



THE COCKPIT.—Showing the general arrangement, with instrument board.

Lubrication is by full force-feed through the hollow crankshaft to the connecting-rod bearing, the knuckle pin bearings, the cam bearing and the magneto drives. The other bearing surfaces, including gears, shafts, cylinders, pistons and gudgeon pins, are lubricated by oil spray.

In makers' tests the engine shows a minimum b.h.p. (corrected to standard atmospheric conditions) of 200 h.p. at 1,800 r.p.m. and 230 h.p. at 2,000 r.p.m.

The maximum fuel consumption is .60 lbs./b.h.p./hr. and the oil consumption .035 lbs./b.h.p./hr. at rated power and speed.

DETAILS OF THE ATLANTIC FLIGHT.

For the following interesting details of the actual flight one is indebted to the Vacuum Oil Company, and in particular, to M. Henri Pagny, the aeronautical engineer in charge of the company's Aviation Department in Paris.

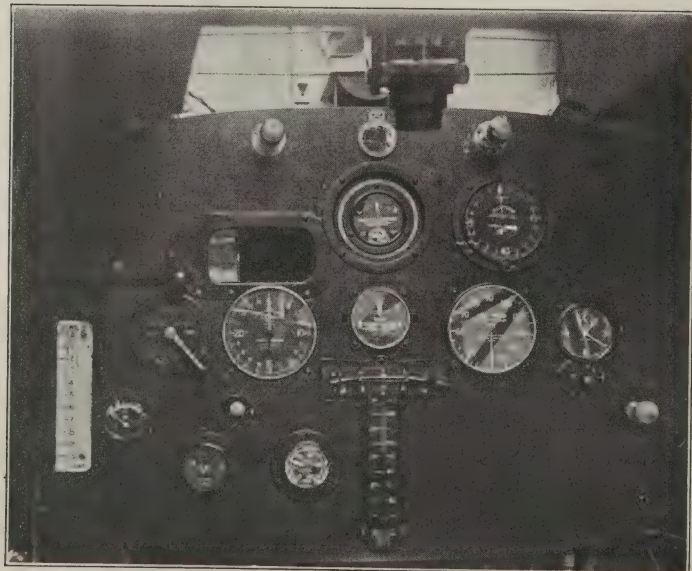
Incidentally, it may be interesting to mention that M. Pagny was associated with the French Hanriot company before the War and was responsible for a number of very successful machines produced by this company, more notably, the two Hanriot-Pagny monoplanes entered for the Military

Trials in 1912 and flown by Mr. S. V. Sippe (now Major Sippe, D.S.O.), and M. Bielovucic. Since then M. Pagny has been connected with several aviation firms, not only in France, but in the United States and Japan.

The Vacuum Oil Company are to be congratulated in having the services of one who is so conversant with aeronautical engineering in charge of their French Aviation Department.

THE INSTRUMENT BOARD OF THE RYAN MONOPLANE.

At the top is the Magnetic Compass with its reflecting mirror. Below that, from left to right, are the Periscope, the Pioneer Inductor Compass Indicator and the Altimeter. In the next row are the Magneto Switch, the Rev. Counter, Turn Indicator, Air. Speed Indicator, and Watch. At the bottom, in the centre, is the fore-and-aft and longitudinal inclinometers, petrol pressure gauge, and the oil thermometer pump. On the extreme right is the priming pump.





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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

In the absence of any representatives of either the Ryan or the Wright companies in Paris on the arrival of Capt. Lindbergh, M. Pagny took charge of all technical arrangements and was responsible for the general overhaul of the machine before it left for Brussels and London.

The Ryan monoplane left New York with 451 U.S. gallons of petrol supplied by the Standard Oil Company, which is associated the Anglo-American Oil Company, and 20 U.S. gallons of Gargoyle Mobiloil "B." On its arrival in Paris, the contents of the tanks were checked by M. Pagny, in the presence of a representative of the Bureau Veritas, and it was found that there remained in the tanks 322 litres (85 U.S. gallons) of petrol and 57 litres (15 U.S. gallons) of oil.

The oil filter on being examined was found to be absolutely clean.

Another interesting point which concerns lubrication is that the eighteen A.C. plugs were used throughout the flight from San Diego to London without once being cleaned.

After the machine's arrival in Paris, a fair amount of damage was done to the fabric of the fuselage and wings, and in addition to the seat cushions and emergency flotation bag, which were later returned in answer to an appeal in the press, two cups off the Pioneer Earth Indicator Compass generator wind-mill, a short length of exhaust pipe and two grease caps from the overhead valve lubricating system were lost.

The task of repairing the fabric damage and replacing the lost parts was undertaken by the engineers of the Vacuum Oil Company. There were no spare parts available so that all metal parts had to be made from solid in as short a time as possible.

The weight of the Ryan Monoplane when it left New York was 5,500 lbs. made up of 2,266 lbs. weight light; 2,640 lbs. weight of petrol; 165 lbs. weight of oil; 429 lbs. weight of pilot, instruments and accessories.

The airscrew was made by the Standard Steel Company and has two forged duralumin blades screwed into a steel boss. The pitch of the blades is variable on the ground.

Prior to the actual Atlantic flight, Capt. Lindbergh flew from San Diego, Calif., to New York, with one stage at St. Louis in 21 hours 20 mins. He flew from San Diego to St. Louis by night entirely by instruments and when he was able to check his course at daylight he found that he was less than 25 miles off his course. During this portion of the flight he safely crossed mountains up to 13,000 feet.

On this flight his oil consumption was only three gallons, two gallons on the San Diego—St. Louis leg and one gallon on the St. Louis—New York leg, and this extremely low consumption was repeated in the Atlantic flight, when, on checking the oil tank contents in Paris, it was found that there still remained 15 gallons of the original 20 gallons. Therefore for the 6,100 miles from San Diego, Calif., to Paris, the total oil consumption was eight gallons, a remarkable figure.

The equivalent figure in Imperial gallons is rather less than seven—and the consumption between New York and Paris was under 4½ gallons, or about one pint per hour—a figure which seems almost incredible. It is, however, a fact that the *Spirit of St. Louis* arrived at Croydon without one visible spot of oil on the exterior of the engine or fuselage, so that the engine undoubtedly does not waste oil.

The Wright engine has certainly justified the confidence placed in it in America. To have put up a World's Record for Duration and to have increased the Distance Record twice (crossing the Atlantic each time) all within two months is a truly remarkable performance.

THE TRIUMPH OF THE MODOCKS.

Capt. Lindbergh's visit to this country is chiefly notable for the complete triumph of the Modocks. A modock it may be remembered is of a tribe of people who gets reflected glory from being in the presence of someone who has done something great in aviation. The precise definition given by Mr. Cy. Caldwell, U.S.A., is "One who attaches himself to any popular movement for purposes of self-advertisement or social prestige."

During Capt. Lindbergh's visit to this country he has not been allowed to come into close contact with the real aviation people in this country with the exception of his enforced stay on Thursday night at Kenley aerodrome, which was probably the evening which he enjoyed most.

Apart from the severely official people he has been kept in the clutches of the Modocks and has been teased and dined by people who habitually show no interest in aviation, except when it is in the limelight. And it has been done only so that these modocks shall attain personal glorification.

One suggests that the Royal Aero Club and its three allied Associations might use the opportunity to persuade all the Lindbergh modocks to show in future a practical interest in Aviation by subscribing to and supporting the various air activities.—G. D.

PACIFIC AIRWAYS IN ACTION.

A British Columbian newspaper discloses the fact that Sq. Ldr. D. R. MacLaren, D.S.O., M.C., D.F.C., has got well to work with his new air transport firm, Pacific Airways Ltd.

Mr. C. F. Tennefoss, a Swedish sea captain, who had urgent business in Shanghai, was taken from the Canadian Pacific Toronto Express at Mission City, B.C., and rushed by seaplane, piloted by Major MacLaren, to the Outer Wharf, Victoria, Vancouver Island, where he boarded the *Empress of Canada*, en route to the Orient.

The previous Sunday, in Toronto, Captain Tennefoss received orders to take over command of the steamer *Ravnefjel*, a Swedish vessel lying in Shanghai harbour, whose former captain had died.

He immediately got into touch with the Canadian Pacific Steamship department, and was informed that if he boarded the Toronto Express, due to leave at 9.00 p.m. on the Sunday, from Toronto, he could do the last lap of the journey to the ship by seaplane.

Just before the Toronto Express was due to reach Mission Major MacLaren landed at a point on the Fraser River within easy reach of the depot, and in under 12 minutes, he, with his passenger, were in full flight for Victoria.

A MATTER OF PRIORITY.

Recently various publications have mentioned the names of firm who claim to have been the first to use aircraft for business purposes. The attention of THE AEROPLANE has been drawn to the fact that undeniably Boulton and Paul have the distinction of having been one of the first in this enterprise.

The *Daily Mirror* of May 3, 1919, stated:—

At 11 a.m. Messrs. Boulton and Paul received a telephone message from Messrs. Mallinson and Sons, timber merchants, of Bury St. Edmunds, requesting information regarding a steel building they required constructed at Bury.

To the surprise of Messrs. Mallinson, the reply was that Mr. R. Neil Williams, the Sales Manager of Messrs. Boulton and Paul, would arrive in Bury in forty minutes and present drawings and an estimate for the proposed work.

Ten minutes later, Mr. Williams, carrying his drawings and estimates rose to the skies in an aeroplane which is kept in readiness by the sales department of his firm, and at 11.35 a.m. he was in Bury doing business.

By noon the contract was completed, and Mr. Williams was able to reach Norwich once more in time for lunch.

Can anyone beat that for date or speed?

A NEW MATERIAL FOR AIRSCREWS.

The Westinghouse Electric and Manufacturing Co., of Pittsburgh, Pa., U.S.A., have for some years past been experimenting with airscrews made from a material known by the trade name of "Micarta."

Micarta consists essentially of layers of a cotton fabric impregnated with certain resinous gums, and then compressed at a fairly high temperature into an apparently homogeneous but really fibrous mass. Like a number of other materials of the same type Micarta was originally developed as an insulating material for electrical work but in various grades it has since found quite a number of other uses in the engineering world, including the production of "silent" gear wheels.

It is absolutely water and weather proof, can be moulded and pressed hot into almost any desired shape, and in addition it can easily be machined. It is, owing to the cotton base, strong and tough, and by suitable choice of the precise gum impregnation and its treatment can be made to have a very wide range of mechanical properties.

It lends itself admirably to the manufacture of airscrews. The cotton fabric base pieces can be cut roughly to shape, impregnated, piled one on the other and then reduced by pressing into a hot mould to practically the finished form and section, requiring only drilling and balancing to produce the finished airscrew, which then, apart from crashing, may be considered an indestructible and indeformable unit, unaffected by temperature and humidity and little susceptible to damage by spray.

It is understood that these Micarta airscrews have been found entirely satisfactory but that originally they were distinctly heavy, and were not used except experimentally. It is now reported that the U.S. Navy have recently ordered 250 Micarta airscrews for use on training machines, and presumably therefore the weight difficulty has been to some extent overcome. In fact it is claimed that these airscrews are lighter than wooden ones.

It is reported that struck by the advantage of a type of airscrew which has all the permanence of form and freedom from warping of the metal type, and is at the same time absolutely incorrodible, Wing Cdr. T. G. Hetherington, the British Air Attaché to the U.S., has asked the Westinghouse Co. for complete technical data concerning these products, with a view to considering the adoption of this material for airscrews used by the R.A.F. in tropical or semi-tropical countries.

THE BOURNEMOUTH MEETING.

Saturday, June 4.

The first afternoon of the Bournemouth Whitsun Meeting opened under somewhat depressing conditions. Major Hemmings' crash naturally had a great deal to do with this, but it could scarcely have accounted for the fact that except in the members' enclosure, the ground was practically empty at the beginning of the first race. Moreover, a surprisingly large number of entrants had failed to turn up. Mr. Dudley Watts' S.E.5a had broken a connecting rod the evening before, Mr. Petre had forced landed on the London Club's Brownie near Southampton, Mr. Wheeler's S.E.5a had arrived, but with a greasy engine, and was in a semi-dismantled state, and Mrs. Lynn's S.E.5a crashed at Brooklands, so that except for the Vickers Vixen (Napier Lion) no machines with any pretensions to speed took part in the races.

But despite this the racing was exceedingly good. The handicappers were in excellent form, and the relative evenness in speed of the competing machines rather improved the interest of the racing than otherwise.

At about half-past twelve on Saturday, Major H. A. Hemming, on Mr. Alan Butler's D.H.37, with Mr. Claud Plevins as passenger, took off from Ensbury Park Racecourse with the intention of flying round the course over which he was to have raced in the afternoon. After taking off he began a climbing turn. At about 60 ft. from the ground—the machine had apparently just reached stalling speed.

Under normal conditions there should have been no serious difficulty in recovering, but unfortunately the pilot had taken off towards the public enclosures, and turned towards the stands, and while turning, descending, and to some extent side-slipping, his wing-tip struck the top of the steel framework of the number board opposite the grand stand. This wrecked the whole of the outer section of the port wings, tore out the interplane struts and bracing wires, and caused the complete collapse of the whole wing structure on that side.

The machine turned over onto its back, and dived into the ground, striking the heavy railing outside the race track, and then skidded along the ground upside down moving along the line of railings and wrecking some twenty or thirty feet of them before coming to rest.

The occupants were extracted from the wreck remarkably quickly, but unfortunately there was neither a doctor nor a trained ambulance party present, and there was a delay of nearly an hour before the victims could be removed to hospital.

Mr. Plevins died during the afternoon without having recovered consciousness. Major Hemming by some marvellous chance suffered no worse injury than a very badly cut face and severe shock.

The first race—The Low Power Handicap—produced four starters, Flt. Lt. Le Poer Trench on the Halton Club biplane, Flg. Off. Mackenzie-Richards on the R.A.E. Club's D.H.53, Flt. Lt. Comper on the Felixstowe Club's C.L.A.4 biplane, and Mr. Norman Jones on the A.N.E.C. II—all with Bristol Cherubs.

Mr. Mackenzie-Richards on the D.H.53 (Bristol Cherub) won the event fairly easily from scratch, Flt. Lt. Comper, whose spinner disrupted during the race, was second, and Mr. Jones was third.

The Ladies' Race, the next event, went as was expected to Mrs. Lyott-Lynn, flying the Westland Widgeon III from scratch. Mrs. Lynn won, but only just, mainly on superior cornering, with Miss O'Brien on a London Club Moth with a Cirrus I engine second, and Lady Bailey on her own Moth last, but by no means much the last. The general standard of flying shown by the three women pilots in this race was exceedingly good.

Half-an-hour's interval between this and the next race was devoted to an exhibition of stunting in formation by three Gloster Gamecocks from No. 43 Squadron, R.A.F. (Tangmere). This was an even better display than that given at the Hamble Pageant by the same three pilots.

Among their manoeuvres was included one of singular grace, which one has not seen before. It consists in the making of steeply banked climbing spirals in formation, with the formation banked at the same angle as the individual machines. It looks fairly simple, but as only one machine of the formation can possibly be flying true, and the other two must be slipping one way or another, it is probably less simple than it looks.

The next race—The Private Owners' Handicap—deprived of all the entered S.E.5as, nevertheless produced a goodly assortment of differing types of aircraft.

Lady Bailey and Mr. Broad flew Moths, Mr. Hinkler his own special Avian, Col. Sempill flew Air Commodore Weir's D.H.54, Sq. Ldr. Longton the Blackburn Bluebird, and Mr. A. F. Scroggs the Westland Wood Pigeon, which he has fitted with a very elderly model of a 45 h.p. Anzani.

The finish of this race was very close indeed. Mr. Hinkler on the

Avian just succeeded in keeping his nose ahead of Col. Sempill at the finishing line, both of the two leaders only passing the limit-man, Mr. Jones on the A.N.E.C. II along the finishing straight.

Mr. Hinkler's speed for this race was 511 m.p.h.—which, considering that the course is now only a shade over 3 miles and has 33 corners on it, suggests that the various modifications he has recently made in this machine have not led to any loss of speed.

Following this race came the first heat of the Bournemouth Hotels Association Sweepstake, an event in which the various local hostellers pay the entrance fees of the competing aircraft, and have an interest in any prize money their entries may win. There were eleven starters, ranging from the R.A.E. Club's D.H.53 to the Vickers Vixen, and this very assorted field led to a good deal of business being done by the bookies.

The problem of whether the Vixen—which was naturally scratch—could overtake the field on the very short course was the subject of much prior discussion, which in fact was never settled. For when the Vixen arrived at the finishing straight the congestion was so great that her pilot (Flt. Lt. Leach) quite wisely decided not to fly up it, and went behind the Grand Stand instead. Quite where he would have finished if he had finished no one can say—but he would have been well in the crowd.

The limit man—Flg. Off. Mackenzie-Richards, on the D.H.53 (Cherub)—passed the line first, but was disqualified for not turning the last mark. The winner was Flt. Lt. Le Poer Trench on the Halton biplane, with Mr. Terrell of the London Club on a Moth second, and Major L. P. Openshaw on Widgeon III third. At least the judges said so, but to the ordinary observer they all seemed to have won equally.

Another interval between races was now occupied by the three Gamecocks. As to their performance there is little that one can say. It was a beautifully finished exhibition of flying, and it is pleasant to be able to record that the general public—of whom a reasonable number were by now present—were very obviously impressed by it. Moreover, they showed that they were intelligently interested, for they waited till the three pilots walked into the Members' enclosure and then applauded.

The second heat of the Hotels Association Sweepstake gave the nearest approach to a dead-heat that one has yet seen in an air-race. Mr. Watt on Avian QL, and Flt. Lt. J. A. Gray on Avian QN, started together, and finished with Mr. Watt leading by what was said to be a yard. It certainly was not more. Sq. Ldr. Rea on the Boulton and Paul P.9—now seven years old—was a good third.

In the final heat—composed of the first three in the first two heats—of this sweepstake, Mr. Watt again succeeded in putting his Avian's nose first across the finishing line, but this time by a somewhat larger margin, and from another competitor. Sq. Ldr. Rea's P.9 finished second, and Flt. Lt. Gray's Avian third.

This ended the official proceedings for the day, but promiscuous flying and joy-riding was still going on when one left half an hour later.—W. H. S.

The Handley Page Hampstead belonging to Imperial Airways Ltd., which was to have taken people joy-riding, had a slight argument on arriving with one of the jumps on the steeplechase course and damaged a lower wing. So she remained on the ground all day.

Sunday's Flying.

Owing to Bournemouth's objection to Sunday flying, Lt.-Col. G. I. P. Henderson had decided to hold a small flying meeting at Swaythling, near Southampton, but as apparently the authorities saw no objection to ordinary non-competitive flying at Bournemouth, Col. Henderson cancelled the Swaythling meeting and flew at Bournemouth.

The Hampstead had recovered from its argument with the jump and a new wing, which had been sent down by road, was fitted. She and Col. Henderson did a certain amount of work and some of the other machines were flying, but the number of people present was less than the number of police at Croydon on Lindbergh Day.

Proceeding finished shortly after 5.30 when steady rain set in.

Monday's Flying.

Naturally it seems very difficult to give a connected account of Monday's happenings in view of the disaster on that day. But one feels that it would be the wishes of Squadron Leader Longton and Major Openshaw themselves that everything should go on as usual.

As one arrived at the aerodrome a Westland Widgeon was giving a very fine exhibition of stunt flying. One well known pilot who had been *en l'île* in Bournemouth the previous evening was heard to remark, "Isn't that wonderful formation work of those three Widgeons?"

Meanwhile there was proceeding the usual attacks on the Handicapper, thereby proving that he had done his work well. Apparently



A CLOSE FINISH.—Mr. Hinkler on the Avro Avian, the Master of Sempill on the D.H.51 and Mr. Norman Jones on the A.N.E.C. finishing in the Private Owners' Handicap. Mr. Hinkler's new undercarriage should be noted.

he had discovered several more horses in Mr. Sparks' engine. The Vixen did several laps by way of practice and was timed by the Handicapper who thus got her speed to a tee.

Three Siskins arrived in formation closely followed by a Gamecock. Shortly after this three more Gamecocks arrived in very close formation.

Meanwhile Flt. Lt. d'Arcy Greig (a British member of the Caterpillar Club) put in some stunt flying on a Genet-Moth. Among his tricks was a dive beyond the vertical so that the machine finished on its back, out of which position it rolled to normal. This feat was actually the first piece of upside-down flying ever done. M. Pégoud did it on a Blériot at Brooklands in 1913 as a sort of prelude to his *pièce de résistance* which was a loop. From that time one has never seen it done again until now.

Mr. Bramson arrived on a sky-writing S.E.5a and flew round the course with his smoke turned full on, marking out the course, so to speak.

At the opening of the proceedings, at 2.30 p.m., the enclosures were very sparsely populated.

The handicapper had done his work well and 12 machines which started were all expected to finish inside ten seconds. After the first lap Flt. Lt. Gray on an Avro Avian retired from the race and it was seen that the remaining eleven machines were going to make a very close thing of it. As they passed the aerodrome turning point and started on the last lap they were all bunched dangerously close. Suddenly, as they passed the far turning-point, the Widgeon and another machine were seen to collide. They fell like a stone and black smoke shot up. Onlookers realised that apart from the fire there could be no hope for either pilot, for the collision occurred at a height of at least 100 ft. and probably was higher.

There was some doubt as to the identity of the second machine as neither Sq. Ldr. Longton, Capt. de Havilland, Mr. Broad, nor Lady Bailey finished. However, Mr. Sparks landed and established the fact clearly that it was the Bluebird.

The six machines which finished all crossed the line within eleven seconds of one another, with Mr. Dudley Watt first on an Avian.

Somewhat naturally when the definite news of the accident arrived the first impression was that the meeting should be called off.

A meeting of officials was called. The officials decided that they could do nothing without consulting the pilots. There were several Air Force officers competing and it was decided that as it has always been a tradition of the Air Force to carry on after a crash it was right to do so here, provided that the remaining races were run off in heats of not more than four machines in each heat.

There is no doubt that this was a wise decision and, although none of us who knew the dead pilots felt like taking much interest in the further proceedings, it did a certain amount towards relieving the gloom.

The heats naturally caused the meeting to be long drawn out, but that was unavoidable and in between the heats there was some fine formation work by the Gloster Gamecocks.

The heats provided some very close finishes and if only in future one heat can be got off directly the previous one has finished, which should easily be possible with only four machines, the spectacle of air racing will be enhanced and the safety increased.

One cannot close these notes without a tribute to the Hon. Lady Bailey. After the accident everybody would have quite understood

if she had decided not to race any more that day. As a matter of fact she flew over to the accident and rendered what aid she could and afterwards competed in all the events, flying and cornering with great skill. This definitely increased the high regard which every one has for her.

The crowd increased during the afternoon, but never at any time was it in its entirety as big as the portion of the Hamble crowd which was in the Club's private enclosure at the Hamble Pageant—G. D.

BOURNEMOUTH RESULTS.

Saturday.

Low-Power Handicap.—1st, Flg. Off. Mackenzie-Richards, D.H.53 (G-EBQP), 73½ m.p.h.; 2nd, Flt. Lt. Comper, C.L.A.4 (G-EBPB), 67 m.p.h.; 3rd, Norman Jones, A.N.E.C.II (G-EBOJ), 65½ m.p.h.

Ladies' Purse.—1st, Mrs. Elliott-Lynn, Westland Widgeon III (G-EBPW), 85½ m.p.h.; 2nd, Miss O'Brien, D.H. Moth (G-EBMF), 75 m.p.h.; 3rd, Lady Bailey, D.H. Moth (G-EBFU), 80½ m.p.h.

Private Owners' Handicap.—1st, Bert Hinkler, Avro Avian (G-EBOV), 91½ m.p.h.; 2nd, Col. Sempill, D.H.51 (G-EBIQ), 92½ m.p.h.; 3rd, Norman Jones, A.N.E.C. (G-EBOJ), 65 m.p.h.

Bournemouth Hotels' Association Sweepstake.—First Heat, 1st, Flt. Lt. Le Poer Trench, Halton H.A.C.I (G-EBOO), 67 m.p.h.; 2nd, G. Terrell, D.H. Moth (G-EBMF), 79 m.p.h.; 3rd, L. P. Openshaw, Westland Widgeon III (G-EBPW), 93 m.p.h.

Second Heat.—1st, D. A. N. Watt, Avro Avian (G-EBQL), 85½ m.p.h.; 2nd, Flt. Lt. J. A. Gray, Avro Avian (G-EBQN), 85½ m.p.h.; 3rd, Sq. Ldr. C. A. Rea, Boulton and Paul P.9 (G-EAWS), 79 m.p.h.

Final.—1st, D. A. N. Watt, Avro Avian (G-EBQL), 88½ m.p.h.; 2nd, Sq. Ldr. C. A. Rea, Boulton and Paul, P.9, 81 m.p.h.; 3rd, Flt. Lt. J. A. Gray, Avro Avian (G-EBQN), 82½ m.p.h.

Monday.

Medium Power Handicap.—1st, F. T. Courtney, D.H. Moth (G-EBOI); 2nd, D. A. N. Watt, Avro Avian (G-EBQL); 3rd, Bert Hinkler, Avro Avian (G-EBOV).

High Power Handicap.—1st, Sq. Ldr. C. A. Rea, Boulton and Paul P.9 (G-EAWS); 2nd, M. L. Bramson, S.E.5a (G-EBIA); 3rd, Flt. Lt. A. Leach, Vickers Vixen (G-EBIP).

Bournemouth and District Business Houses' Sweepstake.—1st, Sq. Ldr. C. A. Rea, Boulton and Paul P.9 (G-EAWS); 2nd, M. L. Bramson, S.E.5a (G-EBIA).

THE GNAT AERO CO. AT WORK.

An interesting and at the same time amusing letter from Mr. Miles of the Gnat Aero Co., of Portlade and Shoreham, shows that the South Coast is having its share of flying. The letter reads as follows:—

"We have completed another week's joy-riding, at Chichester this time, not very profitable financially, but no doubt invaluable as regards experience. The most interesting thing that happened was that the Chief Constable of the County stood at the gate and took tuppences for us while we showed his friends over the machine. We could not persuade him to go up, however.

"The rebuilding of TU proceeds apace, the only part we can use of the original machine appears to be the centre section, which is actually undamaged. We hope to complete it in a few weeks now.

"The only other thing I have to say is:—Have you any publication dealing with the right way to answer joy-ride crowd questions and jocular remarks? If so, I should be very grateful for it, having exhausted all my rhetoric on our two attempts this year.



ATTITUDES AT BOURNEMOUTH.—Left: Mr. Hinkler—Avian (Cirrus)—and the Master of Sempill—D.H.51 (Airdisco)—turning prop-and-prop in the Private Owners' Handicap on Saturday. Right above: Flt. Lt. Le Poer Trench on the Halton H.A.C.I (Cherub), and below: Flg. Off. Mackenzie-Richards on the R.A.E. Club's D.H.53 (Cherub).

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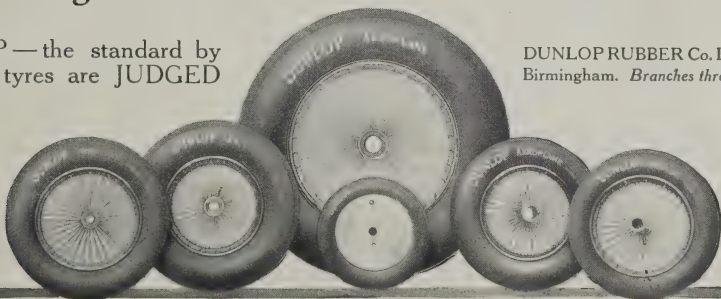
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C.F.H. 618

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A RESURRECTION.—The old Grahame-White Bantam, as recently reconditioned by the Gnat Aero Co., of Portslade, near Brighton, in which Mr. Cecil Pashley, one of the pre-war pioneers, is a partner.

"The remarks we have to cope with are very much as follows:— 'One foot on the ground,' 30 per cent. 'I'm certain to be sick,' 33 per cent. 'Don't want to die yet,' 20 per cent. 'Safer down here,' 10 per cent., and more shortly, 'Not me!' $\frac{6}{12}$ per cent.

"This leaves $\frac{1}{4}$ per cent who go up at all.

"Thus I suppose it is a good job we are getting some sunshine now and the 'Constant Nimbus' seems not so much in evidence.— The above meteorological pun is the work of a pupil. It seemed a pity to waste it as I was writing at the time.

"The aerodrome is in fine condition now, we have removed the floats from the machines and re-fitted wheels."

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: H. E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending June 5.

Total flying time 53 hrs. 25 mins.

Instructors.—Messrs. F. G. M. Sparks and S. L. F. St. Barbe. Instruction.—I. H. McClure, E. J. B. King, G. Black, G. M. Randall, E. K. Blyth, I. C. Horton, L. C. Davey, J. W. Whitelaw, Miss Wilson, P. H. R. Whitehead, H. R. Presland, J. R. de Havilland, J. C. Clarkson, Miss Fletcher, E. A. Lingard, L. Rowson, C. L. Harrison, A. H. M. Lees, B. J. Luff, I. Daniels, Lord Carlrow, O. A. A. Pollard, H. M. Samuelson, G. H. Craig, J. H. Vaisey, Miss O'Brien, L. W. Gibbens, Miss Spooner, A. C. M. Jackaman, M. P. Susman, C. Miesegies, A. B. Ferguson, A. J. Richardson, A. Southgate, H. J. Greenland. Solos.—O. J. Tapper, N. J. Hulbert, J. C. Horton, R. C. Presland, A. F. Wallace, E. L. D. Moore, W. Hay, I. H. McClure, Miss O'Brien, H. Petre, R. Sanders Clark, J. J. Hofer, L. W. Gibbens, A. C. M. Jackaman, Miss Spooner, G. Merton, M. P. Susman, R. Malcolm, G. H. Craig, A. C. Pearson, A. G. D. Alderson, A. J. Mulder, K. V. Wright, C. E. Murrell. Passengers.—L. C. Davey, H. J. Greenland, Miss Frewman, Miss Darroch, Commander Mackintosh, Mrs. McClure.

Certificates.—On June 3 Mr. A. J. Mulder and on June 2 Mr. I. H. McClure passed the tests for the Aviator's Certificate.

The Newcastle-upon-Tyne Aero Club.

[Sec.: A. H. Bell, Cramlington Aerodrome, Northumberland.]

[No report received. Getting ready for the Pageant next Saturday. Don't forget it.—C. G.]

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth, Birmingham.]

Report for week ending June 4.

Total flying time 27 hrs. 21 mins.

Instruction by Mr. McDonough.—R. D. Bednell, R. Cazalet, E. P. Lane, H. Beamish, H. Smith, R. L. Brinton, J. C. Rowlands, F. Coxhill, R. C. Hancock, J. Austin, G. Aldridge. Solos.—W. Swann, A. M.

Glover, E. R. King, S. H. Smith, R. L. Jackson, R. C. Hancock, C. Fellowes, E. J. Brighton, J. F. C. Brinton. Passengers with Mr. McDonough.—F. J. Whitworth. With Mr. Brighton.—N. Crane, Capt. J. E. Brewin, D. Walker, L. P. Lee, L. H. Lee. With Mr. Glover.—Capt. J. E. Brewin, R. L. Jackson.

EBLW is entered for the Newcastle Pageant, and Mr. Brighton will represent the Club in the race for Club Members. We shall not close down at the aerodrome during the week-end as Mr. Glover has undertaken to carry on the instructional work.

On Wednesday (Derby Day) EBLW was seen to leave the aerodrome heading in a South-Easterly direction with special duties to perform. The machine was later seen flying over Oxford, Maidenhead, Reading, Stag Lane, Towcester and Coventry. She returned intact.

The Hampshire Aeroplane Club.

[Sec.: Major R. Ross-White, Hamble, Southampton.]

Report for week ending June 5.

Total flying time for the week 11 hrs. 10 mins. Instruction 4 hrs. 45 mins. Solos 3 hrs. 25 mins. Joy-rides 2 hrs. 10 mins. Tests 50 mins.

Monday, our weekly holiday. Tuesday, slight engine trouble.

Thursday afternoon and Friday, modifications to gudgeon pins.

Instruction.—Lieut. Mandeville, R.N., 10 mins. Capt. Molyneux 30 mins.

Messrs. Jayne 30 mins., Brewster 25 mins., Hamilton Fletcher 25 mins., Cooper 20 mins., D. Rumble 20 mins., Count T. de Sibour 20 mins., Dr. Morrison 20 mins., Messrs. Cox 35 mins., Hunt 10 mins., Wall 10 mins., and Fortlage 10 mins. Solos.—The Hon. H. R. Grosvenor 30 mins., Messrs. Keeping 20 mins., Brodie 15 mins., Deane 10 mins., and F. T. Courtney 2 hrs. 10 mins. Joy-rides.—Miss Renew 20 mins., Miss Scott 20 mins., Miss McNamee 10 mins., Mrs. Fortlage 10 mins., Mr. van der Bergh 1 hr., and Mr. Crook 10 mins.

G-EBOU was brought to Hamble from Stag Lane on Friday evening by Mr. Courtney, who proceeded to Bournemouth on Saturday in G-EBOU to represent the Club at the Whitsun Meeting.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Courtney Prentice, "Hazeldeil," Stowmarket, Suffolk.]

Report for week ending June 4.

On Thursday afternoon, Mr. Kent, flying Avro G-EBKB, arrived at the Club Aerodrome, Bucklesham Road, Ipswich.

The following members had joy-rides:—Mrs. Billinton, Mrs. Courtney Prentice, Mr. Billinton, Mr. R. W. Fison, Mr. C. N. Prentice and Master Eugene Prentice.

On Saturday afternoon Mr. Billinton, with Mr. Kent (pilot), flew over to Saxmundham.

The Club's Bluebird should have been delivered last Saturday, the 28th. Unfortunately owing to the delay in obtaining delivery of a Genet engine the Blackburn Aeroplane Co. regret they will not be able to deliver before the end of July.

A Club Dance will be held at the Great White Horse Hotel, Ipswich, on Friday, June 10, from 8.30 p.m. to 2 a.m. Double tickets 7s. 6d., single 4s.

The following are the officials of the Club:—

President: The Hon. Lady Bailey.

Patrons: The Right Hon. Earl Iveagh, K.P., F.R.S., LL.D., Lord Huntingfield, M.P., Sir Charles Wakefield, Sir William Burton, K.B.E., Mr. Percy Crossman.

Committee: Dr. Jas. Sleigh (Chairman), Mr. H. Billinton, Mrs. Courtney Prentice, Mr. M. R. W. Fison.

The Bristol and Wessex Aeroplane Club.

[Sec.: C. S. Clarke, Channel Road, Walton Park, Clevedon, Som.]

The Bristol and Wessex Aeroplane Club is giving a Flying Display at Filton Aerodrome on June 22 (Wednesday). This is to be followed the same evening by a Public Meeting to be addressed by Sir W. Sefton Branker.

Arrangements are being made for a few R.A.F. machines to assist, and there will be Club-type machines and those of the Bristol Aeroplane Company. A number of pilots have already signified their intention of being present and Mr. Broad has promised to give an exhibition on a D.H. Moth.

The Public Meeting is fixed for 8.30 p.m. as the flying will go on until about 7.

We have now been able to transfer from Yate to Filton, for the Club aerodrome, and altogether, rapid progress is being made, largely due to good work by our President.



PUBLIC SERVICE.—This picture shows one of the familiar joy-ride Avros belonging to Lieut.-Col. G. L. P. Henderson being filled with petrol at the new Pratt's pump on the Aerodrome at Brooklands. This is believed to be the first Petrol Service Station erected in this country for the aviating public. Service petrol pumps have been in use for many years at Croydon, but they have been for the use of the regular airline machines, whereas this pump, as may be seen, is of the ordinary roadside type. No doubt in a few years we shall have similar pumps on municipal aerodromes all over the country.

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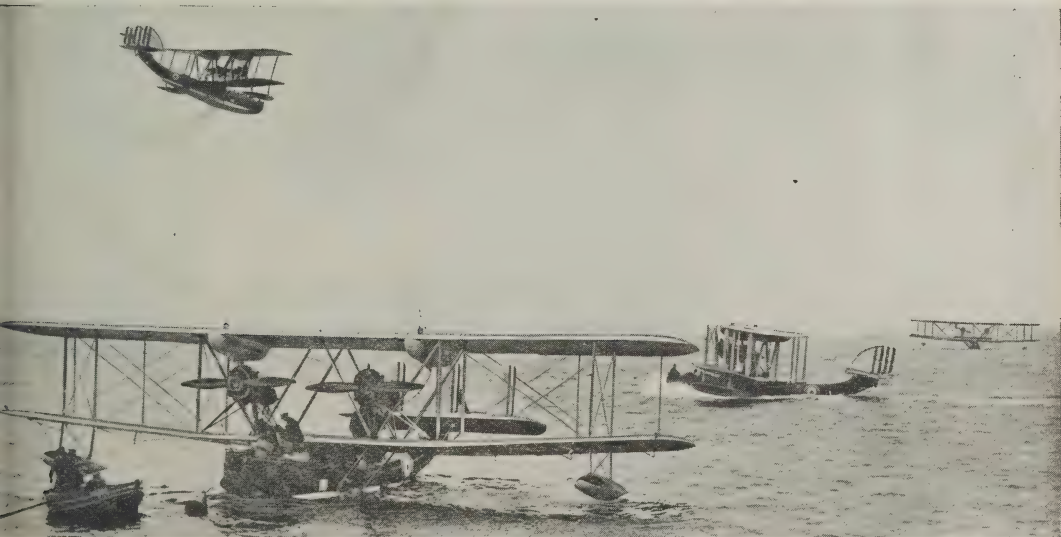
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COMMERCIAL AERONAUTICS.**The London Terminal Aerodrome.****ANALYSIS OF FIGURES FOR THE PAST WEEK.**

Trips per Day.—Monday, 17; Tuesday, 19; Wednesday, 13; Thursday, 18; Friday, 21; Saturday, 29; Sunday, 14.

IMPERIAL AIRWAYS LTD.:

Paris—London; London—Brussels—Cologne: Machines 61, passengers 579, freight 21 tons.

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Paris—London: Machines 33, passengers 157, freight 12 tons.

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Amsterdam—Rotterdam—London: Machines 14, passengers 67, freight 3 tons.

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Brussels—London: Machines 12, passengers 53

PRIVATE:

Machines 5, passengers 1.

Total number of trips by British Machines, 66, carrying 571 passengers. Foreign Machines, 68, carrying 317 passengers.

Comparative Figures:**Week ending June 6:**

Machines, 124; Passengers, 888; Crews, 228; Total personnel, 1,216.

Corresponding week, 1926:

Machines, 138; Passengers, 697; Crews, 172; Total personnel, 869.

Corresponding week, 1925:

Machines, 150; Passengers, 614; Crews, 191; Total personnel, 805.

Corresponding week, 1924:

Machines, 117; Passengers, 372; Crews, 183; Total personnel 555.

Corresponding week, 1923:

Machines, 166; Passengers, 345; Crews, 171; Total personnel, 516.

Corresponding week, 1922:

Machines, 134; Passengers, 258; Crews, 175; Total personnel, 432.

Corresponding week, 1921:

Machines, 97; Passengers, 299; Crews, 111; Total personnel, 410.

Corresponding week, 1920:

Machines, 97; Passengers, 211; Crews, 111; Total personnel, 322.

Croydon Notes.

Capt. Lindbergh has again been a prominent feature of the Croydon landscape. On Thursday he was allowed by the Modocks to poke his nose in at the aerodrome to meet the Croydon pilots and receive a piece of presentation plate from them.

The Air Ministry, shutting the stable door after the horse had bolted, caused an announcement to be made in the Press that Capt. Lindbergh would leave Croydon at 3 p.m. A hundred or so people turned up to see him off and each person present had a couple of policemen to look after him or her.

It was then discovered that Capt. Lindbergh's true point of departure

was Kenley. Here for a radius of a mile or so round the aerodrome there was a black fog, presumably borrowed from the Schneider Committee for the occasion. This prevented the departure until the next day when the Modocks' four days of reflected glory from Capt. Lindbergh ended.

The Derby is close enough to Croydon to come under Croydon Notes so one makes no apology for referring to it here.

One saw at Epsom almost as many of the aeronautical community as at an aviation meeting. After receiving hospitality from a good friend in the great firm, C. C. Wakefield Ltd., one had the satisfaction of seeing a High Official of the Air Ministry apparently studying auto-giro theories on the roundabouts, complete with monocle and bowler hat.

Mr. C. D. Barnard with the Duchess of Bedford in the Hon. Geoffrey Cunliffe's Moth and Lt.-Col. Henderson with someone called Nazimova (an actress) as passenger in a Renault-Avro were cruising in the vicinity during the Derby race.

At the works of A.D.C. Aircraft Ltd. Mr. Stack has been flying a D.H.9. Mr. Perry on this machine flew to Farnborough and back during the week.—G. D.

AIR TAXIS LTD.

On the Martinsyde Mr. Dickinson flew over the Derby last Wednesday. He also went to Ostend and back on Sunday, and again on Monday.

On Tuesday Mr. Hope started to fly to Berlin non-stop on a D.H.50 to get photographs of the trans-Atlantic Bellanca.

A DESERVED PRESENTATION.

Vickers News for June contains the interesting information that on May 5 a handsome set of silver salvers was presented to Mr. Percy Maxwell Muller, Superintendent of the Weybridge Works, by the employees of the firm as a mark of the esteem in which he is held and to commemorate his appointment as a Special Director of Vickers Ltd.

Mr. Muller, in returning thanks, said how much he appreciated the honour which had been paid to the aircraft factory in appointing him to be a Special Director of the firm, as he realised that it was a tribute not only to him personally but in recognition of the efficiency of the Weybridge Works, an efficiency very largely created by the earnest co-operation of all branches of the Works and the loyalty and friendship existing among the employees.

A GERMAN AIR TAXI SERVICE.

It is reported that the Westphalian Aero Company has introduced an "air taxi" service in Germany at a flat rate of 1.35 M. per 1,000 m.—a little over 2s. per mile. The machines used are Focke-Wulf monoplanes.

The De Havilland Hire Service have operated such a service, at 2s. per mile for four passengers, since 1921, and Air Taxis Ltd., formed by Mr. W. L. Hope last year, are doing all the business they can handle at the same rate.

THE IMPERIAL LAIR.—This picture shows the window of Imperial Airways Ltd. in their new premises in Charles Street, Haymarket, which always contain attractive material calculated to make the passing public air-minded. In this particular arrangement there is an illuminated sign of Imperial Airways itself at the top, and underneath is a striking advertisement for the Shell Co., which supplies Imperial Airways Ltd. with all their petrol and oil.

In front of the picture of the aeroplane is a glass case containing one of the pistons from a Napier engine used in one of the firm's air-liners. This engine had run 60,000 miles on Triple Shell Motor Oil without needing decarbonising—excellent testimony to the quality of Shell oil.

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PERSONAL NOTICES.

DEATH

MILLER.—On May 30, at Easton-on-the-Hill, as the result of a flying accident, Horace Miller, Flg. Off., R.A.F.

Mr. Miller joined the R.A.F. in September, 1924, and was posted to No. 4 F.T.S., Egypt, for a course of flying instruction. He was then posted to No. 216 (Bombing) Sqdn., at Heliopolis. In April of this year he joined the Central Flying School at Wittering for a course.

FORTHCOMING MARRIAGES.

GREGORY—OAKLEY.—The engagement is announced between Sq. Ldr. Arthur Leslie Gregory, M.B.E., M.C., R.A.F., son of the late Mr. and Mrs. Arthur Gregory, and Freda Maud, elder daughter of Mr. and Mrs. F. J. Oakley, of White Lodge, Bullington, Sutton Scotney, Hants.

SCRIVEN—GRICE.—The marriage arranged between Flt. Lt. V. R. Scriven and Miss Hilda Grice will take place at St. Margaret's, Westminster, on Friday, June 10.

MARRIAGE.

TOPHAM—CHESSUM.—On Wednesday, June 1, 1927, at the Parish Church, Enfield, Richard Stanley Topham, Sq. Ldr., R.A.F./M.S. (Retired), only son of the late Dr. A. S. Topham and Mrs. Topham, of Halifax, Yorks, to Marjorie, eldest surviving daughter of Mr. and Mrs. Roland B. Chessum, of Enfield.

BIRTH.

FITZHERBERT.—On May 29, 1927, at St. Maur, Alverstoke, to Enid (née Woolright), wife of Flt. Lt. E. C. W. FitzHerbert, M.B.E., D.S.C., R.A.F.—a daughter (Mary Elizabeth).



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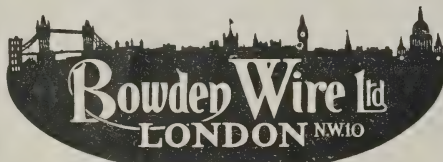
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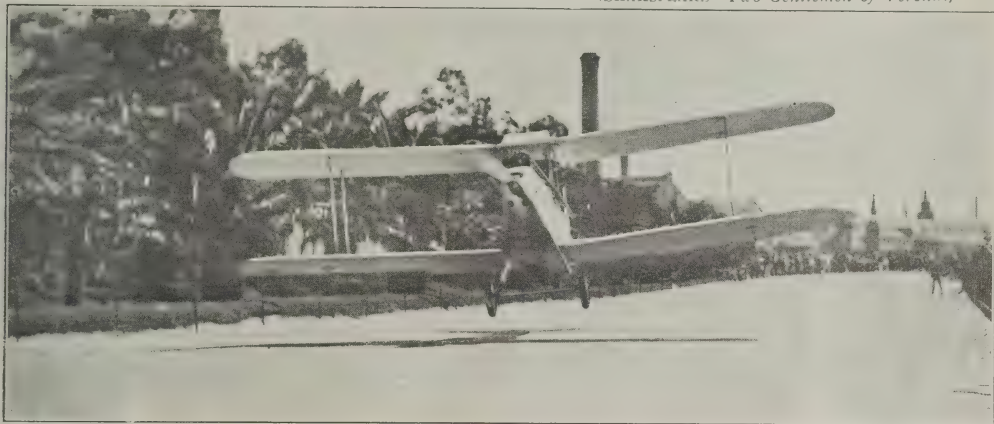
Vol. XXXII. No. 24.

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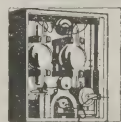


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ON THE SAFETY FIRST COMPETITION.

Amid all the excitements of Unsafe Aviation of the last few weeks, ranging all the way from Capt. Lindbergh's daring dash across the Atlantic to the latest thing in R.A.F. crashes, people in aviation have apparently lost sight of the Safe-Aircraft Competition organised by the Daniel Guggenheim Fund for the Promotion of Aeronautics, and the man in the mob has never heard of it,—thanks to the fact that the daily papers are so much more interested in dangerous flying than they are in safe flying.

As a matter of fact, viewed with a proper sense of proportion, the Guggenheim Safe-Aircraft Competition is vastly more important than all the Atlantic and Round-the-World flights put together. The World's great flights—all the honour being given to the heroes of such flights,—merely prove that given luck and skill and judgment an aeroplane can perform a certain feat. The Guggenheim Competition is organised to prove that the aeroplane can be made an ordinary vehicle of transport as safe as any other vehicle. Until that has been proved the manufacture of aircraft cannot be a really commercial proposition on a permanent basis. Therefore it is up to every aircraft manufacturer in the world, even if he does not enter for the Guggenheim competition, to have a cut at producing a machine which will comply with the conditions of the Competition.

OUR OPPORTUNITY.

Everybody concerned with Aviation in this country will hope most fervently that the British Aircraft Industry will be well represented in the Competition. When one was discussing this question the other day with a man who is very well on the inside of things and who has no illusions about firms or individuals, he remarked cynically, "If the Competition had to do with playing for safety the result would be the British Aircraft Industry first and the rest nowhere!" Personally one is not of this advice. For one believes that if some of our more enterprising firms take the Competition seriously, and will use to the best effect the brains of some of their younger designers, a British firm would have a very good chance of winning the Competition.

Therefore one hopes that the British constructors will not play for safety merely by waiting to see what foreign designers do produce and then following in their footsteps in the hopes of capturing the markets thus created. Far the best policy would be to go all out to win the Competition, and then capture the markets on the strength of the kudos which can be got by winning the Competition.

PASSING THE BUCK.

The Rules for the Competition were issued to the various aviation associations and to firms in the Aircraft Industry about a week ago, so that the chiefs of the various firms at any rate have had a chance of studying them. But, knowing something of British business organisation in all trades, the chances are that these rules, as published, have not as yet percolated through the usual channels to the people most concerned, namely, the commercial and design staffs of the various factories.

In some cases, this being the beginning of the social and holiday season, the book of the words may be still reposing on the desk either of the managing director or the chief letter-opener, more especially as the rules are issued in a neat little book with a very simple cover which might give the impression that it was merely a tract on Safe Flying, a subject which is of comparatively little interest to those who are concerned with selling aircraft of war.

Therefore THE AEROPLANE may do good work by publishing the actual rules in their own words. These are as follows:

RULES FOR THE DANIEL GUGGENHEIM SAFE-AIRCRAFT COMPETITION.

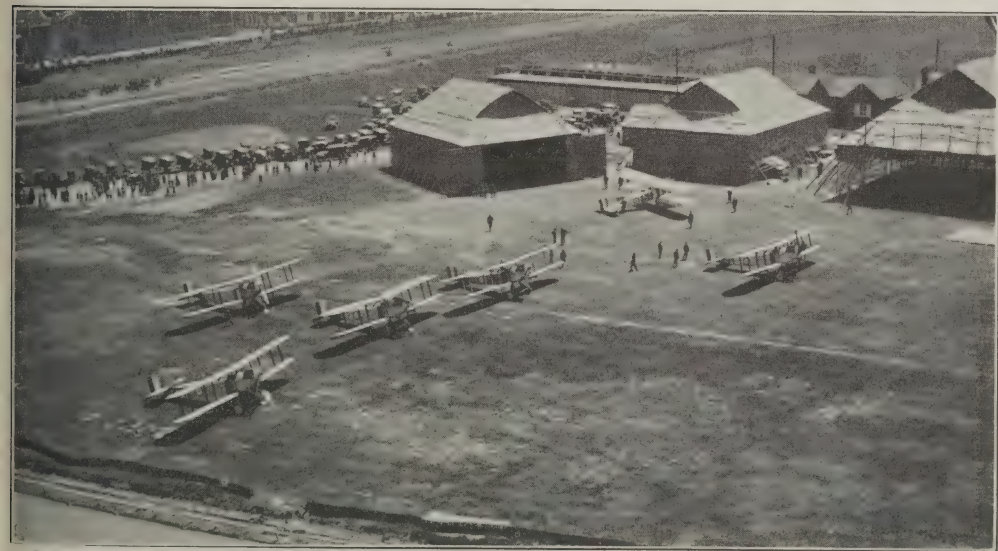
OBJECT OF THE COMPETITION.

The object of the Competition is to achieve a real advance in the safety of flying through improvement in the aerodynamic characteristics of heavier-than-air craft, without sacrificing the good practical qualities of the present-day aircraft.

PLAN OF THE COMPETITION.

The Competition will be conducted in accordance with the following plan:—

1. *Conditions for Entrance.*—Application for entry will be received on and after September 1, 1927. All applications must be made on



ON ACTIVE SERVICE AGAIN.—Fairley IIIDs (Napier Lions) of the R.A.F. China Command on Shanghai Race-Course (officially Kaitak Aerodrome), showing the Chinese copies in vegetable materials of a Service aircraft shed. The array of visitors' cars is worthy of notice.

forms which will be furnished by the Fund upon request. All applications must be forwarded to the Fund at 598, Madison Avenue, New York, N.Y.

An entrance guarantee of one hundred dollars (\$100.00) must be forwarded with the application and will be returned upon rejection of the entry, or upon acceptance and presentation of the aircraft for test.

Before any aircraft can be tested in the Competition full information as to its design and construction must be supplied to the Fund. The application must be accompanied by a statement giving in so far as possible the information called for in Appendix I, in which the applicant is required to produce evidence as to the aerodynamic characteristics of the aircraft and as to its general suitability for entering the Competition having the object given above.

The Fund reserves the right to accept or reject any application for entry and to close the list of entries whenever, in its opinion, sufficient entries have been received to give a reasonable prospect that the object of the Competition will be achieved.

Any heavier-than-air craft based on any principle and built in any country shall be eligible for entry for the Daniel Guggenheim Safe-Aircraft Competition, provided preliminary evidence satisfactory to the Fund is produced that it will promote the object which the Daniel Guggenheim Safe-Aircraft Competition seeks to further.

The employment of designs which, in the opinion of the Fund, are copied from the design of another competitor, may render the aircraft ineligible for entry.

2. Qualifying Requirements.—Every aircraft whose entry for the Competition has been duly accepted will be called upon to demonstrate that it satisfies all the qualifying requirements which are prescribed in Appendix II. In the case of an aircraft which departs radically from conventional practice in securing flight, the Committee of Judges may substitute for those requirements that are impossible of attainment, other tests that will satisfy the object of the Competition.

3. Safety Requirements.—On satisfactory demonstration that all the qualifying requirements are satisfied, the aircraft will be eligible to take part in the Competition proper, consisting of the safety tests and demonstrations in Appendix III.

4. Prizes and Grants.—The winner of the Competition will receive a prize of \$100,000, which amount will include the safety prize if previously received as provided below.

The winner will be the competitor whose aircraft satisfies the qualifying requirements and all the safety requirements and is awarded the highest number of points in the four safety tests enumerated in Appendix IV. Should more than one aircraft win the same maximum number of points, division of the prize will rest within the discretion of the Committee of Judges.

The first five competitors, in the order of presentation of their aircraft for examination and test at the designated field, whose aircraft satisfy all of the safety requirements called for in Appendix III, will each receive a safety prize of \$10,000.

The Fund will consider an application for special grants toward the cost of transporting duly accepted entries to the place where the Competition is held, which will be at a flying field in the vicinity of New York City, on a basis of one dollar per mile in excess of 1,000 miles up to a maximum grant of \$2,000 for any contestant. This grant will not be made until all the qualifying requirements have been satisfied.

5. General Conduct of the Competition.—Notification of the result of their application will be sent to applicants as soon as possible. The Competition will be held at a suitable field in the vicinity of New York City. The examination of the aircraft and the qualifying and safety tests will be held from time to time as designated by the Fund.

The tests will be conducted by a Committee of Judges assisted by a Field Manager and Technical Advisers, selected by the Fund. Decisions of the Committee shall be subject to the approval of the Fund.

The general conditions under which the tests will be carried out are specified in Appendix V.

6. Closure of Competition.—The Competition shall be closed on October 31, 1922, and no aircraft will be accepted for test unless presented for test at the designated field on or before this date.

The Fund may advance the date of the closure if and when in its opinion the object of the Competition has been achieved.

If the date of closure is thus advanced, any contestant whose entry has been duly accepted before the date of the closure thus advanced,

will be granted a reasonable extension of time in which to present his aircraft.

7. Proprietary Rights.—The award or prizes shall not entail the abandonment of any proprietary rights on the part of the contestant but the Fund shall have the right to disseminate complete information pertaining to the aircraft in any way it sees fit.

STRAY COMMENTS.

The first thing to be noted is that if any British aircraft constructor is going to enter for the Competition he had better make up his mind about it before September 1st. It is true that the Competition does not close, according to present arrangements, till two years and two months later, but those who propose to enter it over during that period should note that curious condition allowing the Fund to advance the date of the closure if and when in its opinion the object of the Competition has been achieved.

That is to say, if some bright designer and constructor come along with an aeroplane before the end of 1927 which shows itself to be "as safe as a really safe aeroplane can be" (to paraphrase Jenkyn) the Committee of Judges and their Technical Advisers may shut down the whole Competition.

Such a thing is hardly likely to happen, but the wise constructor who is out to get the huge advertisement which can be derived from winning the Competition will not wait too long before sending in his entry.

Those who are merely commercial-minded may ask whether a prize of 100,000 dollars (roughly £20,000) is worth all the expense and trouble of winning it. Presumably the winning machine will cost at least £5,000 to build, if it is built in any ordinary aircraft factory, though there is always the chance that some little engineering shop at present unknown may produce the winning machine at a cost of something between £500 and £1,000—seeing that Capt. Lindbergh's Ryan monoplane only cost £2,500.

But the amount of the prize does not matter so much. Probably two years hence, when the Competition is on the point of closing, the daily Press will have become surfeited with the risks and horrors of aviation, and the general spread of interest in flying for sport and business will by then have increased to such an extent that the aeronautical correspondents of the daily Press will be allowed to discuss safe aeroplanes in an intelligent and businesslike way—just as the motor correspondents of the same papers have been allowed to discuss the safety of four-wheel brakes and such aids to safe motoring—and will not be forced by ignorant editors to devote their space to mere sensation.

The consequent publicity to be got by winning the Competition will be worth considerably more in profits on orders than the amount of the prize.

There is also the interesting point that the first five competitors, in order of presentation of their machines for examination, who satisfy all the safety requirements, will each receive a prize of £2,000, while retaining the chance of winning the £20,000. This in itself should be something of an incentive to them to act without delay.

EXPENSES.

From the English point of view there is, of course, the handicap of the expense of sending a machine to New York and of maintaining a pilot and crew on the spot while the machine is being put through tests.

As may be seen from paragraph 4, a grant towards the cost of transport will be considered by the Fund, up to a maximum amount of £400. One of the people with whom one has discussed the Competition has suggested that £400



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would hardly pay the expenses of a British aircraft constructor himself living in New York for a week.

That may be perfectly true of the kind of *sojourn de luxe* to which some of our successful constructors have become habituated. But as a matter of fact, those who are content to live in New York up to the same standard of living as that to which they are accustomed in England can live for very little more than the cost on this side of the Atlantic. So a pilot and mechanics with the machine in America would cost very little more than they would here.

There is one point about this which might be cleared up by the promoters of the Competition. That is, supposing a machine were entered on September 1, 1927, and were delivered in New York in March, 1928, would that machine with its pilot and mechanics be expected to remain on the "designated field" until the closing of the Competition some time after October 31, 1929? There is nothing in the rules to suggest that it would not.

Such a machine might satisfy all the safety requirements called for in Appendix III. within a few weeks of its arrival. Would it then be allowed to go home, or would it have to stop there so as to show off its abilities against those of a machine which did not arrive until October 31, 1929?

In this connection another consideration arises. If a constructor sends his machine to the "designated field" early then there is plenty of time for other people to improve on it, even if they do not copy it. Therefore there is every incentive to entrants to send their machines in as late as possible. And that means delaying for anyhow a year the progress of safe aeroplanes in general.

(To be continued.)

THE KING'S CUP RACE.

An official notice from the Royal Aero Club announces that the race for the King's Cup, presented by His Majesty the King, will take place on Saturday, July 30, starting and finishing at the Ensbury Park Racecourse, Bournemouth. The time of starting will be announced later.

The following are the important rules:—

(A) The entrant and pilot or pilots must be British subjects. The entrant must be an individual and not a company.

(B) The race is open to any type of aircraft—whichever, including the engine or engines, must be entirely constructed in the British Empire.

(C) The total distance of the race is 553½ miles divided into three stages of 178 miles each.

Each stage is 178½ miles, consists of seven circuits of a triangular course of 25½ miles, the sides being Bournemouth—New Milton, 10½ miles, New Milton—Ringwood, 8½ miles, Ringwood—Bournemouth, 7 miles,—which means nineteen corners in each stage, or fifty-seven corners altogether.

(D) On the completion of each stage of seven circuits the competitor must alight on the racecourse and stay there for thirty minutes. Any time beyond the thirty minutes will be counted as flying time.

The time at the completion of each stage will be taken as the aircraft passes the finishing line at a height of not more than 500 feet.

(E) The aircraft will be handicapped on a time allowance basis by formula and will start in accordance with the handicap allowance. (So the first man home will be the winner).

(F) Landings between turning points will not disqualify the aircraft; but all times spent on the ground will be taken as flying time.

(G) Repairs and replacements are allowed. But competitors intentionally discarding without immediately replacing any parts of the aircraft or engine, or making any modification to the aircraft or engine during the race, will be disqualified.

(Which apparently means that if a spinner falls off a machine unintentionally it need not be replaced, but that such things as rocker arms may be discarded intentionally, and must be replaced).

(H) The pilot or pilots must not be changed during the race.

(I) Competitors must make their own arrangements about fuel and oil. The nature of the fuel is at the discretion of the competitor—(so faked fuel may be used).

The whole thing is as unlike the original intention of the race for the King's Cup as could well be imagined. When His Majesty honoured the Club by presenting a Cup, he expressed the wish that the Competition should be arranged to increase what is now generally called airmindedness among the people of this country.

As originally arranged, the race took place round Great Britain and did create a good deal of interest in different parts of the country. But, owing to general mismanagement, courses and landing places have generally been chosen which gave the people of the country the least possible opportunity of seeing the race and the competing machines.

So now, apparently to suit the personal convenience of the officials of the Royal Aero Club, this race, which obviously ought to be the great classic air race of the year for all British aircraft, has degenerated into a little hole-and-corner meeting at a holiday resort. And it is being run there, greatly to the inconvenience of people who have to make a living out of aviation, regardless of the fact that at the seaside the crowds which might have gone to see it, if it had been held anywhere else, will obviously be on the beach and not on the racecourse.

If the Committee of the Royal Aero Club really found

serious difficulty in running a round-Britain race, according to the original intention, the race might at least have been flown round greater London so that at any rate the greatest possible number of people might have seen it.

The old objection to running the Aerial Derby round London, namely that the course does not provide safe landing ground for very fast machines, certainly cannot have carried any weight with the Committee of the Royal Aero Club, for there is far less safe landing ground for fast machines in the broken country of the New Forest, cut up with roads and building lots all round Bournemouth and Ringwood, than there is in the Home Counties.

Moreover, on a course with 57 hairpin corners, and machines starting on handicaps laps and hours in front of others, there is every prospect of several machines being dangerously bunched at the corners.

The rules as they stand are good enough as rules, but apart from that the whole thing is an exhibition of the incompetence of the Royal Aero Club.—C. G. G.

THE VISIT OF THE PRESIDENT OF THE F.A.I.

On May 4 Comte Henri de la Vaulx, President of the *Fédération Aéronautique Internationale*, and Vice-President of the *Aéro Club de France*, and one of the pioneer patrons of ballooning and flying, began an aerial tour of the capitals of Europe in the course of which he has visited the various affiliated associations of the F.A.I.

His tour has been by way of Lisbon, Madrid, Rome, Belgrade, Bucharest, Budapest, Vienna, Zürich, Prague, Helsingfors, Stockholm, Oslo, Copenhagen, Amsterdam, London, Brussels, and back to Paris.

He has made each section of the journey in aeroplanes of the visited nations, that is to say, he flew from Paris to Lisbon in a French machine, from Lisbon to Madrid in a Portuguese machine, and so on.

Comte Henri de la Vaulx arrived in London by K.L.M. on June 12, and on June 13, after paying a call on Sir Samuel Hoare at the Air Ministry, he was entertained at lunch at the Savoy by the Royal Aero Club, the Royal Aeronautical Society, and the S.B.A.C.

Lt-Col. Murray O'Connor, C.B., the permanent and able representative of the Aero Club on the F.A.I., who was in the chair, proposed the health of the distinguished visitor in one of his usual witty and graceful speeches. He referred to the good work our guest had done for International Aviation in the past and to the proof he had given of the usefulness and reliability of Commercial Aviation in his present journey. He said that M. le Comte had visited all European countries except that of the "Assassinationoffs" (a useful new name for Russia), and he remarked that the recent Atlantic flights must make the re-actionaries who did not believe in Aviation rub their eyes or their big-ends, or whatever it was they did rub. He wished M. le Comte a happy end to his journey and *au revoir*.

THE COMTE HENRI DE LA VAUX, in a speech of true French courtesy, said that his journey had proved to him the efficiency of National Aviation in all countries and also the truly International character of Aviation. At Bâle he found a miniature but perfect aerodrome. At Copenhagen he found an aerodrome and seaplane station combined, and three machines leaving simultaneously at 9 a.m., each representing a different line,—Dutch, Swedish and Danish. Even in such diminished nations as Hungary and Austria the air lines ran daily with perfect regularity. He thanked all the air lines, through Mr. Woods Humphrey of Imperial Airways, for their courtesy and hospitality to him.

SPANISH MILITARY PROGRESS.

According to the Madrid correspondent of *The Times*, H.M. the King of Spain inspected 14 new squadrons of the Spanish Army Air Service at the review held at Getafe aerodrome, near Madrid, on June 19. The total number of machines in the review was 120, all of which have been built or assembled in Spain during the past year.

The strength in army aeroplanes is about 450, but under the programme now in hand the number will ultimately be 1,400. De Havilland, Breguet, Fokker, and Dornier Wal aircraft are constructed or assembled under license at half a dozen workshops, and Spanish constructors are beginning to produce types of their own. The Government is building one type, the A.M.E., at the Army Aircraft Factory at Cuatro Vientos. This type is fitted with the 300 h.p. Hispano-Suiza engine. A Catalan, Captain Barada, has designed an aeroplane to be armed with four machine-guns, all of which can be fired by the pilot. An engine said to give great power for low weight and size has been designed by Captain Barada, and is being tested.

SCHNEIDER TROPHY CANDIDATES.

The Supermarine-Napier S5 has been successfully flown by Flg. Off. O. E. Worsley off Calshot. Taxying trials were done earlier in the week, and towards the end of last week the machine was flown. The true speed is not yet known because the aircrew is unsuitable.

One hears that a geared Napier engine is being prepared for this machine and for the Gloster. By this means it is believed that a higher percentage of available engine power will be delivered to the aircrew.—G. D.

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THE ROYAL AIR FORCE.

The London Gazette.

June 7.

GENERAL DUTIES BRANCH.—The following officers are granted perm. comms. in the ranks stated, with effect from June 1:—Flt. Lt. W. V. Hyde, Flg. Off. A. Hesketh, D.F.C., Flg. Off. R. V. M. Odbert, Flg. Off. B. V. Reynolds, Flg. Off. C. B. Wincott.

The following Plt. Offs. are promoted to the rank of Flg. Off.:—H. L. Patch (Apr. 12); W. G. Campbell (Apr. 12); A. W. A. Ricks (Apr. 18).

Sq. Ldr. H. L. Hammer, D.F.C., is placed on half-pay, Scale B (June 5 to Sept. 18, 1927, inclusive).

The following officers are transferred to the Reserve, Class A (June 5):—Flt. Lt. J. G. Horne, Flt. Lt. F. J. Powell, M.C.

Flt. Lt. S. Smith, D.C.M., is transferred to the Reserve, Class C (June 7); Plt. Off. on probation D. Taylor resigns his S.S. comm. (June 1).

RESERVE OF AIR FORCE OFFICERS.—GENERAL DUTIES BRANCH.—The following are granted comms. in Class A.A., General Duties Branch, as Plt. Offs. on probation:—H. Buckingham, E. J. Davis (May 23).

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—The following to be Plt. Off.:—No. 600 CITY OF LONDON (BOMBING) SQUADRON.—N. Montefiore (June 7). Plt. Off. D. H. T. Lancaster resigns his comm. (June 8).

Appointments.

Week ending June 13.

GENERAL DUTIES BRANCH.—Squadron Leaders J. Noakes, A.F.C., M.M., to C.F.S., Wittering, 15/6. R. D. Oxland, to No. 2 F.T.S., Digby, 23/5. Flight Lieutenants B. J. Silly, M.C., D.F.C., to R.A.F. Depot, Uxbridge, 22/5. H. J. Collins, to H.Q., 'Iraq, 25/5.

Flying Officers J. W. Caddy, to Aircraft Depot, 'Iraq, 22/5. C. H. Johnson, to H.Q., 'Iraq, 12/5. R. Scott-Taylor, to No. 6 Sqn., 'Iraq, instead of to H.Q., 'Iraq, as previously notified, 20/4. L. S. Potter, to No. 70 Sqn., 'Iraq, 25/5. A. L. Ottway, to R.A.F. Depot, Uxbridge, 26/3. C. A. Bell, to No. 16 Sqn., Old Sarum, 26/5. H. Hollick-Kenyon, to Night Flying Flight, Biggin Hill, 22/6. R. A. King, to R.A.F. Depot, Uxbridge, 14/5. S. N. Webster, A.F.C., and H. M. Schofield, to M.A.E.E., Felixstowe, 1/6. J. A. Tindall, to No. 502 Ulster (Bombing) Sqn., Aldergrove, 26/5.

Pilot Officers J. Blackmore, A. W. A. Ricks and H. J. Walker, to No. 502 Ulster (Bombing) Sqn., Aldergrove, 26/5.

MEDICAL BRANCH.—Squadron Leader A. J. O. Wigmore, M.B., to No. 1 F.T.S., Netheravon, 14/6.

Flight Lieutenants F. L. White, to No. 14 Sqn., Palestine, 10/5. A. Harvey, M.B., to Palestine General Hospital, 1/5. Flight Lieutenant (Dental) S. A. McCormack, to R.A.F. General Hospital, 'Iraq, 1/4.

Flying Officers E. P. Carroll and G. W. McAleer, M.B., to Research Laboratory and M.O.S. of I. on appointment to S.S. Comms., 1/6.

STORES BRANCH.—Flight Lieutenant A. J. Briddon, to remain at H.Q., Cranwell. A. J. Roberts, to R.A.F. Depot, Uxbridge, 20/5. Flying Officer M. H. Jenks, to Home Aircraft Depot, Hendlow, 17/5.

ACCOUNTANT BRANCH.—Wing Commander A. G. N. Belfield, to R.A.F. Depot, Uxbridge, 22/5. Flying Officer R. G. D. Thomas, to R.A.F. Depot, Uxbridge, 22/5.

A Fatal Accident.

The Air Ministry regrets to announce that as the result of an accident at Marsa Scirocco, Malta, to a Fairey Flycatcher machine of No. 402 Flight, on June 9, Haydon Marriott Sutherland Forbes, D.S.C., Lt.-Cdr. R.N., Flg. Off. R.A.F., the pilot and sole occupant of the aircraft, was killed.

The Auxiliary Air Force.

Group Captain H.R.H. the Prince of Wales, K.G., will open the new Headquarters for No. 601 (County of London) Bombing Squadron, Auxiliary Air Force, at 54 Kensington Park Road, W.11, on June 21.

No. 601 Squadron is commanded by Sq. Ldr. the Lord Edward Grosvenor.

Air Operations in 'Iraq.

The Baghdad correspondent of *The Times* in a message dated June 13 states:—

News has reached Baghdad of a neat little military operation in which British aeroplanes and armoured cars co-operated, showing how effectively order is being maintained over vast desert areas by the Air Force authorities.

Last week Transjordan raiders from the Transjordan crossed the 'Iraqi frontier, attacked Syrian tribes pasturing in 'Iraq near the Euphrates, and decamped with 250 camels. Armoured cars and aeroplanes were ordered to proceed to Rutba Wells to intercept the raiders, who were located by aerial reconnaissance. The pilots brought back information to the armoured cars, which set out in swift



THE SERVICE AFRICAN TOUR, 1927.—The Service African Tour under Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., at East London, Cape Colony. The top left-hand photograph shows one of the S.A. Air Force D.H.9s warming up, with Air Cmdr. Samson and Major Prins, M.C., District Staff Officer. The middle left-hand picture shows Air Cmdr. Samson and the S.A. Air Force S-Maj. examining maps in front of a Fairey III. Three of the S.A. Air Force D.H.9s appear in the bottom left-hand corner. On the right Air Cmdr. Samson inspecting the Fairey IIIFs just after landing. Below, Lt. Klopfer's D.H.9 being fitted with a new wheel, and below that the S.A. Air Force Flight ready to start.

THE CLUBS



CHARLES C. DICKSON
'27

USE MOTHS

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

pursuit and overtook the raiders, who surrendered without resistance. Some 200 armed men with the looted camels were captured. The raiders were disarmed and subsequently released, but their two leaders were detained. The original owners of the camels are now trekking across the desert to recover their property.

Air Operations on the N.W. Frontier.

The Allahabad correspondent of *The Daily Express* in a message dated June 8 states:—

Intensive air operations are being carried out against the turbulent Mohmand tribesmen on the North-West Frontier.

The Air Force went into action north-west of Peshawar yesterday and dispersed a large force of Mohmand raiders, inflicting considerable casualties. If, however, these air operations fail, other measures, it is declared, will be enforced.

The *Pioneer* states that the garrison at Rawalpindi is standing by, and that all leave has been cancelled.

The Reuter correspondent at Peshawar in the *Daily Express* of June 10 says:—

The hostile raiding parties which recently made a night attack on block-houses held by friendly tribesmen in the Mohmand country of the North-West Frontier have been dispersed.

The Return of the Wanderers.

On the evening of June 7 Flight Lieuts. Carr and Gillman arrived at Victoria, having had, one hopes, a pleasing rest-cure since they fell into the Persian Gulf on May 21.

Many of the morning and evening papers found an opportunity to attack the Air Ministry in the fact that these officers returned from a Service flight in a proper Service manner and were merely met on their arrival by a few personal friends and not by a public celebration. Nobody can have a greater admiration for these two aviators than one has oneself, and one has had the privilege of knowing Flt. Lt. Carr for a good many years. Therefore one can say with assurance that nobody would have been more thoroughly disgusted at anything in the nature of a public reception than they would have been themselves.

You cannot make a silk purse out of a sow's ear, and you cannot expect a cad who has absorbed the fetid atmosphere of Fleet Street to understand the instincts of an officer and gentleman. That is all that need be said about the agitation in the newspapers.

Without having had any official statement on the subject, one can say with certainty that when the Air Ministry itself knows what forced the Horsley to come down that knowledge will be made public; and that if the cause of the failure cannot be discovered the Air Ministry will say so. Until then that is all that need be said on that subject.

A second attempt is to be made and the second Horsley has been flown from Brooklands to Cranwell in readiness for the new venture. Flt. Lt. Carr will again be the pilot and Flt. Lt. P. H. Mackworth, D.F.C., who was on the Cairo-Cape flight in 1926, will replace Flt. Lt. Gillman as navigator, the services of the latter being required elsewhere in this country.

Everybody concerned with aviation will wish that the second attempt on the flight to India may meet with better luck.—C. C. G.

The Service Flight towards the East.

The Air Ministry announces that at present it is not possible to state the cause of the stoppage of the engine resulting in the forced landing in the Persian Gulf. Investigation is still proceeding. It may be that the definite cause will never be known owing to the damage caused by the machine hitting the water, and the fact that several parts were lost during salvage operations. At present it is thought that the trouble was probably nothing more serious than a temporary stoppage of the petrol supply, due possibly to an air-lock.

To Walter Longton.

One who knew Walter Hunt Longton well has written this tribute to his memory:—

"We have lost in W. H. L. undoubtedly the finest airman the world has yet produced—to what purpose God knows."

"There may have been, maybe there are, those who could turn a neater evolution on a particular type of aircraft, and perhaps those whose specialist knowledge would place them a neck ahead on a given specialist job. There was never a neater hand on any type and every type in any weather by day or night under any conditions. So much for the Pilot qua Pilot."

"There never was, I doubt whether there ever will be another instructor who could take a round dozen, random picked, and produce a dozen real pilots, and, like himself, *real enthusiasts*, every time."

"There never was, for our good I hope there may be some day yet again, such all round skill in air 'creft,' such a fund of solid all-round air experience, such a flair for air leadership and airmanship in any sense, such a source of inspiration to those that toil '*Ad Astra*' in the footsteps which he, more than any, made easier to those that follow after."

"I doubt whether any existing, or departed, pilot could approach the hours flown totalled up in his log books, and those of us who knew him knew that every hour of that total was spent in the cause of doing something for his country, his Service, or his pupils, or, indeed, for anyone or anything but himself."

"A better pilot, a finer officer, a more lovable man never existed. He is dead, but what of it? By his example, his skill in instruction, his devotion to his Service and to aviation, he must surely have been directly responsible for saving dozens of lives. Those of us who knew him and loved him know he would be well content with such a bargain."

"That we are not, is beside the point."

The Lahore-Lympne Attempt.

The *Times* correspondent at Constantinople in a message dated June 7, states:—

There is still no news of Flg. Off. J. J. Cocks, No. 60 (Bombing) Squadron, R.A.F., and I.-Ac. Rowston, who, on their way from Lahore to Lympne, left Konia for Constantinople on May 25.

In reply to my request for information in regard to their doings at Konia, the Mayor of that town has telegraphed the following message:—"Flg. Off. Cocks, who left Karachi on May 20, arrived at Konia on the 25th. In spite of an unfavourable weather forecast he left Konia on the same day." This is the first that has been heard about bad weather and it serves to strengthen the belief that the airmen met with an accident in the neighbourhood of Konia.

The search is being continued and to-day members of the British Embassy staff in Constantinople and of the British Diplomatic Delegation at Angora are leaving for Konia to assist.

The Royal Air Force, China.

No. 2 (Army Co-operation) Squadron, R.A.F. (Bristol Fighters) arrived at Shanghai and debarked on June 1.

According to the June Air Force List the "Royal Air Force China," under the command of Grp. Capt. E. D. M. Robertson, D.F.C., Fleet Aviation Officer to C.-in-C. China, consists of one Squadron Leader, to command Kaitak Aerodrome, and three Flying Officers.

The units administered direct by the Fleet Aviation Officer, China, for Personnel purposes are:—

R.A.F. Units in H.M.S. *Hermes*, Nos. 403 (Fleet Fighter) and 441 (Fleet Reconnaissance) Flights.

R.A.F. Units in H.M.S. *Argus*, Nos. 404 (Fleet Fighter) (half), 422 (Fleet Spotter), and 441 (Fleet Reconnaissance) Flights.



AT EAST LONDON.—Some of the personnel of the combined operations between an R.A.F. Flight and a S.A.A.F. Flight during the Service African Tour during March and April, 1927.

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R.A.F. Units attached to H.M.S. *Tamar*, Nos. 401 (Fleet Fighter), 442 (Fleet Reconnaissance), and 443 (Fleet Reconnaissance) (half) Flights.

Fleet Air Arm Reserve Stores Section, Fleet Air Arm Accounts Office, Fleet Air Arm Repair Section.

A *Reuter* message from Shanghai dated June 10 states:—General Pei Chung-hsi, the Commander-in-Chief of the Nationalist forces in Shanghai, has sent a letter to the local Commissioner for Foreign Affairs, requesting him to protest to the British Consul against British aeroplanes flying over Chinese territory. The letter adds: "If further flights take place I will order my men to fire, and in the event of anything untoward taking place we certainly cannot be blamed."

Mr. C. C. Wu, the Foreign Minister of the Nanking (Moderate Nationalist) Government, has protested to Sir Miles Lampson, the British Minister at Peking, in regard to the action of British aeroplanes in flying over Canton on May 18, as well as in regard to British airmen flying over Shanghai.

The R.A.F. Display.

Air Marshal Sir John Salmond, Air Officer Commanding-in-Chief, Air Defences of Great Britain, who is also chairman of the R.A.F. Display Committee, will deliver a broadcast address about the Display from Savoy Hill on the evening of Saturday, June 18.

Arrangements have also been made with the British Broadcasting Corporation for a broadcast during the Display of three of the principal events.

This deliberate attempt on the part of the B.B.C. to impose frightfulness on pacifist homes will undoubtedly cause the voice of the Thurtle to be heard in the land.—C. M. MCA.

R.A.F. SPORTS.

The R.A.F. Athletic Championships.

The R.A.F. Athletic Championships will be held at Uxbridge on June 22, 23 and 25, beginning at 14.30 hours each day.

The M.T. Depot (Shrewsbury) Sports.

The Mechanical Transport Depot, Shrewsbury, held their annual Athletic Sports on June 9.

Owing to the fact that thirty-two events were contested it is impossible to give the winners of all of them. Open events and comic events have therefore been omitted.

The results of the R.A.F. Athletic events were:—*Marathon*, 12 miles.—L.A.Cs. Neal, Sampson, Smith.
Cross-Country, 5 miles.—A.C.1. Plank, L.A.C. Neal, A.C.1. Searle.
Rifle Championship—S.M.1. Kerr, L.A.C. Aitchison, L.A.C. Hazell.
High Jump.—No. 2 Section, No. 7 Section, No. 1 Section. *Long Jump*.—No. 5 Section, No. 3 Section, No. 1 Section.
100 yards.—L.A.C. Rosam (10 4-5ths), A.C.2. Cooper, A.C.2. Baker (974).
Hurdles Relay.—No. 2 Section (1 min.), No. 5 Section. *1 Mile Relay*.—No. 1 Section (4 min. 11 secs.), No. 3 Section, No. 5 Section. 440 yards.—A.C.1. Wornell (59 secs.), A.C.2. Cooper, L.A.C. Twyman.
Officers' Race.—Lt. W. R. Westcombe, Flt. Lt. R. T. B. Houghton, Wing Cdr. R. L. Mounsey, O.B.E. 440 yards Relay.—No. 1 Section (59 secs.), No. 5 Section, No. 3 Section. 220 yards.—A.C.1. Wornell (26 secs.), L.A.C. Rosam, A.C.2. Cooper.
W.O.s' and Sjs.'s Race.—Sjt. West, P.S. Warwick, Sjt. Goacher.
Corporals' Race.—Cpl. Breeds, Cpl. Marsh, Cpl. Christie. 2 Miles Relay.—No. 1 Section (6 min. 34 4-5ths), No. 4 Section, No. 2 Section.
Tug-o-War.—No. 7 Section (2 pulls), No. 1 Section (1 pull). *1 Mile Team Race*.—No. 1 Section, No. 4 Section, No. 5 Section.

After the sports the prizes were presented by Mrs. Mounsey.

Boxing at Old Sarum.

A Boxing Tournament took place at the R.A.F. Station, Old Sarum, on May 27.

Wing Cdr. C. C. Durston's Trophy for inter-Section boxing by Novices, Old Sarum, was won by the Transport Section with 19 points. The runners-up were the Training Squadron with 7 points.

The programme also included a special six-round contest between Flt. Off. A. C. Watkins (the promoter of the Tournament) and Jack Kerley (Salisbury). Mr. Watkins always appeared to be quicker than his opponent and although he came in for a lot of punishment he won on points.

There were also two special four-round contests which produced some good fighting. AC. Hogan (Old Sarum) beat Young Paignton (Salisbury), and L.A.C. Harvey (Netheravon) knocked out Cpl. Mockrie (Old Sarum) in the third round.

AC. Reynolds (Wireless) was awarded the prize for the best loser. The finals for the Durston Cup were:

Fly-weight.—AC. Gordon, w.o., AC. Hare (Wireless) scratched.
Bantam-weight.—AC. Robinson (Transport) beat AC. Wills (Training Squadron) on points. *Feather-weight*.—AC. Izzard (Wireless) knocked out AC. Bacon (Transport) in the third round. *Light-weight*.—AC. Mabbett (T. Sqdn.) beat AC. Coggins (Transport), who retired after the second round. *Welter-weight*.—AC. Rudder knocked out AC. Hicks (T. Sqdn.) in the third round. *Middle-weight*.—AC. Murray beat AC. Case (T. Sqdn.) on points. *Light-heavy-weight*.—L.A.C. Hague (T. Sqdn.) beat L.A.C. Taylor (T. Sqdn.), who retired. *Heavy-weight*.—L.A.C. Thompson (Transport) beat AC. Cauley (Wireless) on points.

Air Force Songs.

Air Force Songs and Verses, a collection of the words of some of the songs sung by the Flying Services during the War 1914-18, is still on sale at the office of the R.A.F. Memorial Fund, 7, Idlesleigh House, Caxton Street, S.W.1.

**ROYAL AIR FORCE
DISPLAY
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SATURDAY, JULY 2.**

BOXES from £7.15-14. TICKETS (including Tax) 10/5-2/- CARTICKETS (including Tax) 5/-

Boxes and Tickets can now be obtained from the SECRETARY R.A.F. UXBRIDGE, or from all Libraries and Ticket Agencies. BOXES FOR 2/- ENCLOSED ARE NOT BOOKABLE IN ADVANCE. BROCKEN IN AID OF THE R.A.F. MEMORIAL FUND.

THE BOMBING OF WEMBLEY.—The poster designed by Mr. W. E. Johns (Fig. O.R., R.A.F.) to advertise the R.A.F. Display which will take place at Hendon on July 2.

The debarkation of troops in the foreground does not indicate a bathing party in the Tigris but a machine landing to rescue friendly civilians from the bombed city. It is to be hoped that the de-planed force includes Sappers who will be able to make a new bridge to grow where the old one grew before.

The sky and river are of a vivid blue and the sand is bright yellow. The buildings, so reminiscent of Wembley, are apparently neo-Russian or pseudo-Tartar, which will doubtless satisfy the anti-square-head complex of The Editor of "The Aeroplane."

Doubtless the poster will offend the Pacifists. But it will please the Warofficists—"id est," those who believe that the duty of a War Office is to make War, just as it is the duty of an Air Ministry to make Air (H. and C.).

But more than half of the available copies have already been sold and anyone who wants a copy of this unique reminder of days that are gone should write forthwith to Idlesleigh House enclosing a Postal Order for 2s.

A PRIVILEGE FOR R.Ae.C. MEMBERS.

The Royal Aero Club has been allotted a reserved space in the 10s. Enclosure at the Royal Air Force Display at Hendon on the 2nd July. Tickets of admission to the Royal Air Force Display for the 10s. and 5s. Enclosure may be obtained from the Royal Aero Club.

The Royal Aero Club will serve a limited number of luncheons and teas in the enclosure, and members are requested to notify the Club if they wish to avail themselves of these facilities.

A LONG-DISTANCE PASSENGER FLIGHT.

Mr. Van Lear Black, chief proprietor of the *Baltimore Sun*, who has already undertaken several long-distance flights to Italy, Germany, Austria, Jugo-Slavia and France, is now preparing to make a passenger flight to the Dutch East Indies and back. The object of the flight is, to use his own words, "For first-hand observation of protracted commercial flying under varying conditions."

He has chartered a Fokker F.VII. monoplane (620 h.p. Jupiter engine) from K.L.M., and his pilots will be Mr. Geyssendorfer and Mr. J. B. Scholte.

His route will be London, Amsterdam, Budapest, Constantinople, Aleppo, Baghdad, Bunder Abbas, Karachi, Delhi, Allahabad, Calcutta, Rangoon, Bangkok, Singoa, Singapore, and Batavia.

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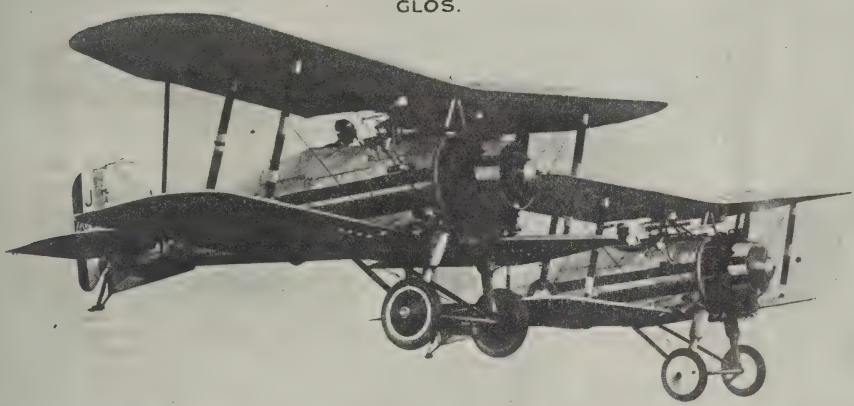
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COLONEL LINDBERGH AT HOME.

On Saturday, June 4, Capt. Charles Lindbergh left Cherbourg on the *U.S.S. Memphis*.

On June 6 the Governor of Missouri announced that he had been promoted to the rank of Colonel in the National Guard of that State, in which body he had previously held the rank of Captain.

On the same day Capt. Lindbergh was awarded the Langley Medal by the Smithsonian Institution of Washington. In the nineteen years since the foundation of this medal, in memory of the man who designed the first practical flying machine, the medal has only been awarded to four persons, to wit, the Brothers Wilbur and Orville Wright, Mr. Glenn Curtiss and Monsieur Eiffel.

On June 7 the National Geographic Society of America voted to Colonel Lindbergh the Hubbard Medal, which it bestows upon distinguished explorers, the previous seven recipients including Rear-Admiral Peary, Capt. Amundsen, Sir Ernest Shackleton and Commander Byrd.

Newspaper reports stated that arrangements were being made for a U.S. Army airship to drop on board the *Memphis* as she neared the American coast the uniform of a Colonel in the National Guard of Missouri, so that Col. Lindbergh might have the outward signs of his new rank when receiving the American Distinguished Flying Cross from President Coolidge.

Photographs of the ceremony cabled by the Bartlane process (Western Union transmission) and published in the *Daily Mirror* on June 13, happily show that Col. Lindbergh when presented to the President was properly clothed in civilian garments.

Another example of the very proper way in which the Lindbergh family does things is provided by the fact that Mrs. Lindbergh and her son both decline to accept the gifts which are being showered upon them, even to the extent of refusing a trust fund which would assure their living in comfort for the term of their natural lives.

On June 11 the *U.S.S. Memphis* arrived at Washington, having been met outside by about fifty aeroplanes. The first person to board the ship was very properly Col. Lindbergh's mother. Thereafter he was transported under adequate escort to the Washington Monument, where President Coolidge nominated him Colonel in the Officers' Reserve Corps of the American Army and decorated him with the Distinguished Flying Cross.

On June 12 Col. Lindbergh arrived in New York by seaplane, amid scenes of wild enthusiasm. He received the City's Medal of Valour at the City Hall, and in Central Park was presented with the Medal of Valour of New York State by Governor Smith.

As to Col. Lindbergh's future, *The Times* correspondent at Washington writes as follows:—

He will look about him before making the choice of his path, and so strongly does he hold the rational affection, so wistfully are national hopes bound up in him, that his decision will be something which touches the entire people. In him, as it were, the American character and effect upon character of the American civilisation are to be judged. If he should be beguiled by mere wealth and should seek posture rather than propriety, it would be a national loss and a cause of national sadness.

One is glad to see these words from one who knows the real America. The blatancy of the American "movie" and the American "drummer," and so forth, is no more really American than it is really English. The real American is essentially English in his or her love of seeing things done decently and in order. And the Lindbergh family represent the best of everything that is English and Scandinavian in its American development.—C. G. C.

AMERICA TO GERMANY.

After being immensely entertained by and being immensely entertaining at the town of Kottbus, which has leaped into fame almost as great as that of Köpenick before the War, Mr. Clarence Chamberlin and Mr. Charles Levine flew to Berlin on June 7th.

The prominence of the comic Kottbus in the world is entirely undeserved, for the landing there of the trans-Atlantic aviators was entirely a mistake. Obviously Bisleben is the town which ought to be known to history, which it probably will not.

However, the Wright Bellanca landed at the Tempelhoferfeld, where the aviators were welcomed by Herr Curtius, Minister of Economic Affairs, Herr Böss, Oberbürgermeister of Berlin, Herr von Schubert, Permanent Under-Secretary of the Foreign Office, and the United States Ambassador,—and presumably by Major von Tschudi, the head-centre of German Aviation. Though the Berlin correspondents of the English papers omit to mention him, one may be pretty sure that he was the chief organiser of the aerial side of the ceremonies.

On June 8 Messrs Chamberlin and Levine were presented to President von Hindenburg, still in their trans-Atlantic clothes. In the afternoon they were entertained to tea by the Chancellor, Herr Marx, and in the evening they were entertained to dinner at the American Embassy.

On the 9th they had lunch with Herr Stresemann, the

Foreign Minister, and dined with Herr Koch, Minister of Communications.

On June 10 they were presented at the City Hall by Herr Böss, Oberbürgermeister of Berlin, with plaques of honour, such as are only given to those who render unusual services to the city. Herr Böss announced that the new road to the Tempelhofer Aerodrome would be named "Columbia Strasse."

Mr. William Randolph Hearst, the proprietor of the *New York Herald* and various other papers in the States, has cabled to Mr. Chamberlin an offer of £20,000 if they will fly back from Berlin to New York. The offer is a big one, and Mr. Hearst stands to score by it either way, as is his custom. If the aviators accept the offer and succeed in getting across his paper will have the exclusive right to their story, and if they are drowned, or otherwise killed on the way, he will at any rate have created something new in sensations, seeing that Messrs. Nungesser and Coli were merely competing for a prize, and not for a newspaper advertisement.

They did intend to fly to Vienna this week, but found that their engine needed a complete overhaul, doubtless owing to standing on its head in the swamp at Kottbus, so they are treating themselves to a holiday the rest of the week.

There is some talk of the gallant pair coming to England. If they do everybody will be pleased to see them, but they must not expect a welcome such as Capt. Lindbergh had. Londoners can only work up a fit of air-hysteria about twice in a year (the last time was when Mr. Alan Cobham arrived from Australia), and if Messrs. Chamberlin and Levine arrive at Croydon they will probably find themselves being received by more police than people.—C. G. C.

THE FLIGHT ROUND THE ATLANTIC.

On June 10 Col. the Marchese de Pinedo left Horta, Azores, in the Santa Maria II. at 06.30 hours, and flying out to the spot, 200 miles W. of Horta, where he was forced to alight on his flight from Newfoundland, passed over Horta at 12.30 hours on his return, and continued to St. Michael's, where he arrived at 14.00 hours.

On June 12 he left St. Michael's at 06.00 hours and flew to Lisbon, where he arrived at 16.50 hours.

Owing to the death of a Portuguese aviator in an accident on June 6 there were no festivities. He was met by a number of important Portuguese and Italian personages and was later received by the President and decorated with the Grand Cross of the Order of Santiago. He was also the guest of the Portuguese Government at a banquet.

On June 13 he arrived at Barcelona from Lisbon and at the same time four Spanish military aeroplanes arrived to take the Marchese to Madrid, where there will be a fête and banquet in his honour.



NEW YORK TO GERMANY.—Mr. Clarence Chamberlin and Mr. Charles Levine, the holder of the present World's Distance Record of 4,000 miles (approximately).

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ROLLS-ROYCE AERO ENGINES in a Handley-Page aeroplane flew from **ENGLAND** to **INDIA** in 1919.

ROLLS-ROYCE AERO ENGINES in a Vickers-Vimy aeroplane flew across the **NORTH ATLANTIC** in 1919.

ROLLS-ROYCE AERO ENGINES in a Vickers-Vimy aeroplane flew from **ENGLAND** to **AUSTRALIA** in 1919.

ROLLS-ROYCE AERO ENGINES in a Vickers-Vimy aeroplane flew from **ENGLAND** to **SOUTH AFRICA** in 1920.

ROLLS-ROYCE AERO ENGINES in a Fairey seaplane flew across the **SOUTH ATLANTIC** in 1922.

ROLLS-ROYCE AERO ENGINES in a Fairey seaplane flew round **AUSTRALIA** in 1924.

A ROLLS-ROYCE AERO ENGINE in a Fokker monoplane flew from **HOLLAND** to the **EAST INDIES** in 1924.

A ROLLS-ROYCE AERO ENGINE in a Handley-Page aeroplane flew from **BRUSSELS** to the **BELGIAN CONGO** in 1925.

ROLLS-ROYCE AERO ENGINES in Dornier-Wal flying boats flew from **MOROCCO** to **SPANISH WEST AFRICA** in 1926.

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THE NEWCASTLE MEETING.

Individually and personally,—*privatim et separatim*, as it were—the people who run the Newcastle-upon-Tyne Aero Club are the best fellows in the World. But, as so often happens with corporate bodies, collectively they are the World's prize Mutt.

How they managed to make such a complete mess of their Meeting last Saturday is a mystery. They had perfect weather, a large and interested, if not a wildly enthusiastic, crowd, and enough machines to make some really good racing. And yet they somehow missed the bus hopelessly.

It is true that Mr. Alex Bell, the energetic and capable secretary, was down with pleurisy—much to everyone's regret—but even so things ought not to have been as bad as they were.

The show began at 14.30 hrs. By that time they had well over 20,000 people in the enclosures and had taken over £700 in gate-money. There must have been some 500 cars there in spite of the fact that the organisers had apparently relied on the City of Newcastle for their gate and had not bothered to advertise the show to the County.

All the same quite a lot of the best people of the County came to the show. And Air Vice-Marshal Brancher came from London for it.

Owing to the disaster at Bournemouth there were few visiting machines. One gathered that the Air Ministry had stopped all racing by R.A.F. officers—which after all is reasonable, for a trained pilot has probably cost the Nation anything up to £10,000 (if one includes the machines he has crashed in training), so it is foolish to waste him in a civilian flying-race. Also the Insurance Group, one was told, wanted £20 per machine to insure it for a day's racing,—which choked several clubs and owners off going to Newcastle for comparatively small prizes.

The result was that there were only eleven machines on the ground to race, besides a Bristol fighter of the R.A.F., which dropped in casually on the way from somewhere to somewhere, and a Genet-engined Moth, which has been lent to the R.A.F. for test purposes and could not be raced.

The gallant eleven were as follows:—The Newcastle Club had two Moths (Cirrus) and an Avro (Renault). Also there was Mr. Baxter Ellis' D.H.53 (painted a bilious yellow, with silver wings and named "Belco") and another D.H.53 owned by a syndicate of four members of the Club. Messrs. Clapham and Wall brought a Yorkshire Moth, Capt. Milburn and Mr. Beck coming by road. Mr. Sparks and Capt. Spooner brought a London Moth, Mr. Craig coming by rail. Sq. Ldr. Rea brought a Boulton and Paul P.g. Mr. Broad brought the Moth X. (Cirrus II). Lord Ossulston brought his own Moth. And last but not least the Hon. Lady Bailey brought her own Moth.

Mrs. Elliott-Lynn had been advertised by the local press as the star attraction of the meeting, but as she omitted to bring an aeroplane with her, and as other people thought that they would rather like to fly their own machines, the crowd was deprived of the privilege of seeing her in the air.

There was some talk of a race for women pilots, but it did not come off, so we had no chance of seeing Newcastle's own aviatrix, Miss Leathart, in the air. Which was a pity, for good judges say that this sporting little lady looks like being really as good as a good mere-male pilot.

Incidentally one may say that Lady Bailey is quite worthy to rank among the best pilots of this country. She does not fly in a spectacular way and she takes no chances. But she handles her machine beautifully, and her landings and take-offs are very well judged.

Racing began, after a parade and fly-past which produced some quite pretty flying, with the Private Owners' Handicap. There were only five entrants, but the Committee were so scared by the Bournemouth accidents that they decided to fly them in two heats (two machines in one and three in another). Also they decided to make each heat one lap of the seven-mile course, instead of three laps as per programme.

This re-arrangement somehow caused a delay from which the Committee never recovered, and, although the eleven machines were ultimately reduced to eight by an accident to the B. and P. and engine troubles with the D.H.53, there was such a long wait between the third and fourth races that the crowd swarmed over the aerodrome, thinking the racing was over and walked round the machines to inspect them.

The people were lured back to the side of the aerodrome by a comic "football match" on motor-cycles, but all interest in flying had gone, even the sun had retired behind the clouds and the bitter East wind drove most of the car-folk home long before the show was over.

Nobody can blame the crowd. There were loud-speakers round the aerodrome, worked by a very competent announcer, but the liaison between the wobbling Committee of Operations and the announcer was so bad that there was nothing for him to announce. And so the crowd never knew what was a heat or what was a final or who was what or where.

What a show of this sort needs is a Race Manager, with the voice, manner, and vocabulary of a Drill-Sergeant, and a number of officials under him who will stand being cursed in the proper spirit without taking offence. You can't run a Meeting with a Soviet any more than you can run a Nation.

The final of the first race, the Private Owners' Handicap, was won in excellent style by Lady Bailey, with Sq. Ldr. Rea second.

The final of the race for the President's Cup (for Pilot Instructors and "B" licence pilots), given by that good sportsman Sir Joseph Reed, was won by Mr. Sparks of the London Club, with Mr. Parkinson of the Newcastle Club a close second, and Mr. Broad third.

The Inter-Club Relay Race was won by the London Club team, Mr. Sparks, Capt. Spooner and Mr. Craig, with Newcastle second and Yorkshire third. The way Mr. Parkinson changed seats with Mr. Tod was a marvel. Mr. Parkinson landed exactly on the mark and Mr. Tod had his first leg into one side of the cock-pit before Mr. Parkinson had his second leg out of it.

The Open Handicap was tied in knots because the Soviet flew the final over three laps when the handicapper (the skilful Mr. J. M. Gray) had handicapped for one lap,—or *vice versa*, one did not bother to discover which. So everybody lodged objections and they (whoever "they" were) decided to fly it over again on Sunday morning,—on which morning one stayed in bed, thanks to a kind and understanding host and hostess.

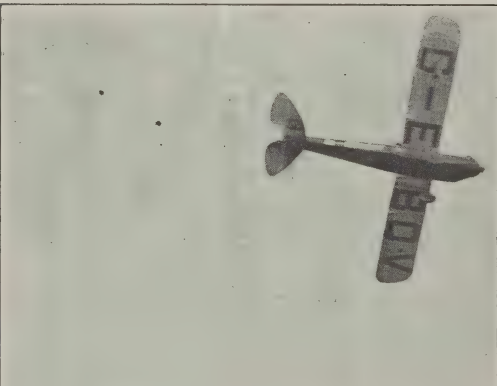
During the long and unnecessary waits there was some very fine exhibition flying. Mr. Atcherley (Flg. Off. R.A.F.) was excellent on the Genet Moth, which he flew upside down and sideways apparently as easily as right way up. One gathers that sundry officers are practising on this machine for the R.A.F. Display, in which six of the type are to be used. The result is that the one now in common use spends most of its time on its back.

Mr. Parkinson gave one of the best shows of pure trick flying that one has seen. Crazy flying on a Moth is more effective than on a bigger machine because it is so much quicker in its movement. Apart from that his loops and spins were unusually neat.

Mr. Broad showed in his usual able way that the X-type Moth is as obedient as the older type. And Mr. Baxter Ellis evolved gracefully on his bilious 53.

The Club had hoped to have some R.A.F. machines to impress the crowd. But the Air Ministry apparently thought that the place was too far away and that the date was too near the R.A.F. Display, to permit the sending of machines. Which strikes one as silly, because Newcastle is a fine recruiting area, and if machines can be sent to amuse Bank Holiday crowds at Bournemouth, and to help to put money into the pockets of purely commercial race-course proprietors, surely they would be better employed in making Northumberland air-minded.

Anyhow, if it wasn't much of a race-meeting, it was a very jolly day in the country. And the Tyne-siders are a first-class sporting lot.—C. G. G.



(Photograph by courtesy of "The North Mail and Newcastle Chronicle.")

THE NEWCASTLE MEETING.—Mr. Parkinson on a Club Moth over a corner of the crowd. Mr. Baxter Ellis' D.H.53 is seen on the ground.

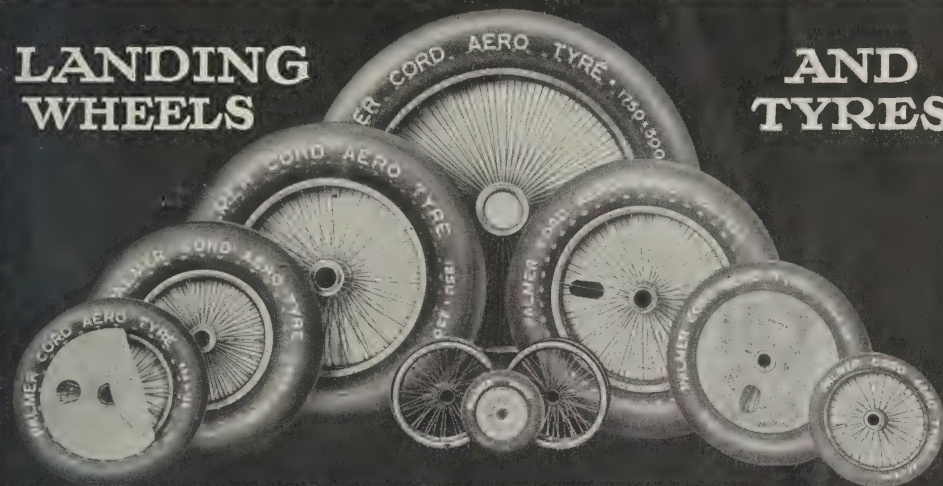


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300 x 60	16	111.12	25.4	Central	"	176	178.	44.45	Central	1000 x 180	148	220.	80.	Central
"	172	130.	38.09	Central	"	179	178.	55.	132/46	"	149	185.	55.	Central
450 x 60	30	89.	31.75	Central	650 x 125	119	178.	55.	132/46	"	155	220.	66.67	Central
"	172	130.	38.09	Central	"	147	178.	55.	Central	"	166	185.	55.	125/60
575 x 60	21	160.	28.	Central	"	188	120.	34.92	Central	"	"	"	"	"
"	180	150.	38.09	104/46	750 x 125	77	178.	44.45	132/46	900 x 230	107	185.	55.	Central
"	186	120.	34.92	Central	"	92	185.	55.	135/50	"	108	185.	55.	125/60
"	90	150.	38.09	Central	"	95	185.	55.	Central	"	128	220.	66.67	Central
650 x 65	78	178.	44.45	132/46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	79	178.	44.45	Central	"	112	150.	38.09	Central	"	157	185.	80.	Central
"	100	178.	38.09	132/46	"	176	178.	44.45	Central	"	202	185.	60.32	Central
"	101	178.	31.75	132/46	"	179	178.	55.	132/46	1100 x 220	134	220.	66.67	Central
800 x 75	21	160.	28.	Central	800 x 150	161*	185.	55.	135/50	"	136	250.	80.	Central
"	180	150.	38.09	104/46	"	162*	185.	55.	Central	975 x 225	192	185.	60.32	Central
"	186	120.	34.92	Central	"	163*	185.	66.67	135/50	"	194	185.	55.	125/60
"	190	150.	38.09	Central	"	169*	185.	55.	135/50	"	"	"	"	"
700 x 75	78	178.	44.45	132/46	"	177	185.	55.	135/50	1250 x 250	133	250.	80.	Central
"	79	178.	44.45	Central	"	183	185.	55.	Central	"	154	304.8	101.6	Central
"	100	178.	38.09	132/46	"	211*	185.	60.32	135/50	1500 x 300	115	304.8	101.6	Central
"	101	178.	31.75	132/46	1000 x 150	167	185.	55.	125/60	"	126	304.8	152.4	Central
700 x 100	77	178.	44.45	132/46	"	174	250.	80.	Central	1750 x 300	139	400.	152.4	Central
"	92	185.	55.	135/50	"	182	185.	55.	Central	"	191	350.	150.3	Central
"	95	185.	55.	Central	"	187	220.	66.67	Central	1750 x 350	193	400.	125.	Central
"	99	178.	38.89	132/46	"	201	185.	60.32	125/60					

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: H. E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending June 12.

Flying time for week 69 hrs. 15 mins.

Instructors.—Messrs. F. G. M. Sparks and S. L. F. St. Barbe. **Instruction.**—Lady Bailey, B. G. Luff, A. J. Richardson, P. O. A. Davison, L. W. Gibbens, J. H. Veasey, L. Daniels, G. H. S. Mills, H. R. Presland, Miss Spooner, P. W. Hoare, C. G. V. Mieser, E. J. B. King, H. M. Samuelson, I. C. Davey, J. R. de Havilland, W. Biheller, M. P. Susman, O. A. A. Pollard, G. Black, E. T. Symmons, K. Drysdale Smith, L. Rowson, Lord Carlrow, R. C. Woodcock, F. C. Fisher, E. A. Lingard, H. J. Greenland, J. W. Whytlaw, Miss Fletcher, Dr. Cook, G. E. Clair, O. J. Marstrand, F. W. R. Martino, J. S. Boulton, A. H. M. Lees, R. Malcolm, A. Southgate, A. B. Ferguson. **Solo.**—Lady Bailey, J. J. Hofer, W. Hay, L. W. Gibbens, A. J. Mulder, R. Sanders Clark, Miss Spooner, R. M. S. Veal, E. T. Symmons, E. L. D. Moore, O. J. Tapper, Miss O'Brien, I. H. McClure, N. J. Hulbert, R. F. Cooper, Major K. M. Beaumont. **Passengers.**—Miss Wilson, Mrs. Woods Humphrey, Mrs. Cook.

Record for May.—The Club established a record month's flying in May. The total hours being 235 hrs. 20 mins., made up as follows:—Instruction, 246 flights, 110 hrs. 50 mins. Solos Flying, 26 flights, 82 hrs. 5 mins. Passengers, 47 flights, 16 hrs. 30 mins. Tests, 76 flights, 12 hrs. 40 mins. Race Meetings, 13 hrs. 15 mins. Total, 595 flights, 235 hrs. 20 mins.

R.A.F. Display.—Members wishing to obtain tickets for the Royal Air Force Display at Hendon Aerodrome on July 2 should apply to the Secretary, Royal Air Club, 3, Clifford Street, London, W.1.

The Lancashire Aero Club.

[Sec.: C. J. Wood, Windsor Bank, Chapel Street, Hyde, Cheshire.]

Report for week ending June 4.

Total flying time 35 hrs. 15 mins., made up as follows:—Dual instruction 17 hrs. 25 mins. Solo 8 hrs. 15 mins. Joy-rides 8 hrs. 15 mins. Test flights 1 hr. 20 mins.

During the week Mr. Chapman, taxiing too fast down hill and down wind, found himself unable to avoid the ditch at the bottom of the slope. With considerable agility and presence of mind he leaped out, ran to the wing-tip and almost succeeded in turning the machine in time. One wheel, however, just went over the edge, but only the aircrew suffered any damage. Although not yet qualified for his Aerobatics certificate it is felt that Mr. Chapman ought to be given one for Aerobatics.

Report for week ending June 11.

Total flying time 40 hrs., made up as follows:—Dual with Mr. Brown.—Harber 2 hrs. 45 mins., Linaker 1 hr. 55 mins., Torres 1 hr. 45 mins., Nelson 1 hr. 40 mins., Schofield 1 hr., Davison 1 hr. 20 mins., Rowley 1 hr. 15 mins., Shiers 35 mins., Heys 50 mins., Riley 35 mins., Miss Baerlein 40 mins., Ruddy and Kinsley 30 mins. each, Collinson, Dobson, Stonex and Hope 25 mins. each, Musgrave and F. Scholes 15 mins. each. **Solos.**—Musgrave 3 hrs., Costa 2 hrs. 20 mins., Gattrell 1 hr. 40 mins., Ward and Nelson 1 hr. 15 mins. each, Leeming and Chapman 55 mins. each, Abdalla 50 mins., Crosthwaite 30 mins., Goodfellow, Benson and Forshaw 25 mins. each, Hardy 35 mins., Cantrill and Lacayo 20 mins. each, Wade 15 mins. **Joy-rides.**—With Mr. Cantrill.—Mrs. Schofield, Miss Hughes, Andrews, Thomas, and Miller, Stubbs and Thorpe. With Mr. Lacayo.—Hartley, Booth and F. Scholes. With Mr. Brown.—Dyson and Walker. **Test flights.**—1 hr. 35 mins.

Messrs. Musgrave and Ward successfully did their height test during the week. One may as well record any cheerful items first for there is a gloomy tale to follow.

At the moment of writing the Club possesses one serviceable machine. MQ and OK, which are out of action for complete overhaul and undercarriage replacements respectively, will soon be back at work, but IR, the first Moth delivered to the Club, has probably made her last flight.

Mr. Lacayo, with Mr. F. Scholes as his passenger, was making a cross-country flight when a rocker arm broke. It appears that the pilot only discovered at the last moment that the field he had selected was bisected by iron railings. A desperate attempt to avoid them by turning resulted in a nasty mess, the machine finishing up on her back in a state of considerable disintegration, with the petrol tank more or less wrapped round the exhaust pipe, or vice versa.

When the machine had been removed from the occupants it was found that Mr. Scholes was suffering from a thick ear and Mr. Lacayo from an attack of gloom. For his comfort one may mention that iron railings are notoriously difficult to spot from the air and have been the undoing of many an experienced pilot before now. A bit of comic relief was added later on when our ground engineer, having tried every argument to disperse the crowd round the wreckage, added as a final exhortation:—"Do go home to your suppers. You've seen all that there is to see. She won't be flying again to-night."

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth, Birmingham.]

Report for week ending June 11.

Total flying time 20 hrs. 44 mins.

Instruction with Mr. McDonough.—R. Cazalet, V. de Satge, J. A. Edwards, G. Aldridge, R. L. Brinton, J. C. Rowlands, R. D. Bednell, J. W. Brewin. **Instruction with Mr. Glover.**—H. Beamish, G. V. Perry, C. Fellowes, W. Swann, R. L. Jackson, S. H. Smith. **Passengers.**—Capt. J. E. Brewin, V. de Satge. **Tests.**—1 hr. 40 mins. Mr. Hubert Broad landed at the aerodrome on Saturday in the D.H. Moth X.

We were reluctantly compelled to scratch our entry for the Newcastle Pageant as EBLT came due for top overhaul during the week, and we therefore only had the one machine available for dual over the week-end.

The wedding takes place on Tuesday of our Chief Instructor, Mr. W. J. McDonough. All will join in wishing him the very best of wishes for his future happiness.

Mr. A. M. Glover (Flg. Off. Royal Air Force Reserve) has been appointed Hon. Assistant Instructor and will be on duty at the aerodrome during the week-ends.

The Race for the Air League Cup will be held on July 16 in conjunction with the Birmingham Air Pageant, when two additional short races will be included.

The Yorkshire Aeroplane Club.

[Sec.: T. M. Coles, Sherburn Aerodrome, Yorks.]

Report for week ending June 4.

Total time flown for the week amounted to 28 hrs. 25 mins., made up as follows:—Dual instruction with Mr. G. R. Beck, 15 hrs. 50 mins. Cross-country, 3 hrs. 20 mins. Photography, 35 mins. Tests, 20 mins. Joy-rides, 1 hr. 15 mins. Aerodrome solo, 7 hrs. 7 mins.

Dual with Mr. Beck.—Maj.-Gen. Sir L. W. Atcherley, Capt. Milburn, and Messrs. Blackburn, Thomson, Marchbank, Wilson, B. Dawson, L. S. Dawson, Bray, Oglesby, Henry Leetham, Ambler, Hyllton, Williams, Birch, Watson. **Solo.**—Capt. Milburn, R. Atcherley, D. Atcherley, N. S. Norway, Ivo Thomson, V. Batcock, G. L. Wood, M. B. Lax, R. K. Lax, Henry Leetham, D. D. Little, L. S. Dawson.

On Thursday and Friday G-EBNN was out of commission having a change of engines after completing the time permitted for complete overhaul, consequently G-ERLX has been kept busy.

One of our recently-joined members, Mr. Ivo Thomson, put up a real good show on his first solo on Sunday last. He had his first lesson in flying on Apr. 28 and in 19 flights, comprising a total of eight hours' dual in exactly one month, he has become a most proficient pilot.

On Monday, Capt. Milburn chartered Mr. Beck and a Moth for a business trip to Newcastle and Tuesday an interesting visit was paid to the Works of The Blackburn Aeroplane Co., Ltd., Brough. Capt. Milburn got busy again on Wednesday and went through his tests for "A" Licence.

On Saturday we did little owing to the wind reaching gale force. Mr. L. S. Dawson did his country test for Mrs. Robert Blackburn's Prize. Leaving here he flew round Harrogate, York, Scarborough and back. It is hoped that all our members will have a smack at this competition prior to July 31, which is the closing date.

Report for the week ending June 11. Solos, 5 hrs. 20 mins. Dual instruction, 10 hrs. 50 mins. Tests, 1 hr. Joy-rides, 2 hrs. 5 mins. Flying in connection with the Newcastle Pageant, 5 hrs. 30 mins. Photography, 4 hrs. 50 mins. Total flying time 30 hrs. 20 mins.

Instruction with Mr. Beck.—General Atcherley, Messrs. R. Lax, Swift, Yeomans.



PERSONALITIES AT CRAMINGTON.—Above,—Mr. Sparks (London Club), Messrs. Wall and Clapham (Yorkshire Club), Mr. Parkinson (Newcastle Club). Below, Mr. Thompson (Newcastle Club), Messrs. Beck and Coles (Yorkshire Club), Lord Ossulston (Newcastle Club).

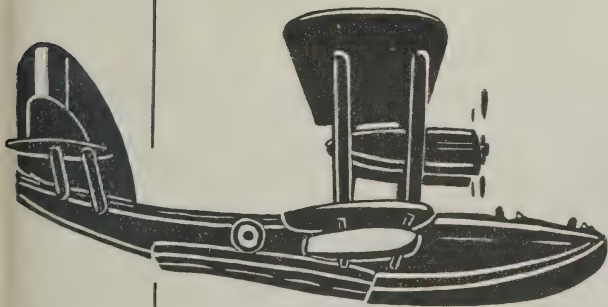
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Ambler, Winn, Tattersall, Thompson, Blackenbury, Capt. Milburn, Messrs. Hylton, B. Dawson. *Solo*—D. Atcherley, R. Atcherley, Wilson, R. Lax, Clapham, Birch, M. Lax, Wayman, Thompson, Mann.

All the world has been trundling North to Newcastle during the latter part of the week, and most of it has passed through this aerodrome. We who were not present in person can only hope that they enjoyed themselves there.

A week of hectic engineering on the part of our dam good staff resulted in G-EBNN carrying off the booby prize in the three races for which we entered. Better to be safe than sorry. We had looked forward to meeting Hampshire at Newcastle, and were disappointed.

The Hampshire Aeroplane Club.

[Sec.: Major R. Ross-White, Hamble, Southampton.]

Report for week ending June 12.

Total flying time 18 hrs. Instruction flying, 13 hrs. 50 mins. Solo flying, 2 hrs. 10 mins. Joy-riding, 1 hr. Test flights, 1 hr.

Instruction—Miss Home (one of our first pupils, who has returned to England from "furrin parts"), Commander Hunt, Capt. Molynoux, Messrs. Brewster, Taylor, Cox, Hamilton, Wall, Crook, Whittle, Greasley, Fortlage, Moloney, Shepherd, Southcliffe, Butterley, A. K. Mellor, Dickson, Nicholson, E. A. L. Parker, and Courtney. *Solos*—Don Juan de la Cierva, Flg. Off. Overbury, K. P. L. Bowen, Deane, Wyllie, Ash, Cooper, Nicholson, and Keeping. *Joy-rides*—Mrs. Fortlage, Miss Renew, Westbrooke, Mariner, and A. N. Other, all with Mr. Thomson and Mr. Jones with Mr. Wyllie.

We are very sorry that we were not able to put in an appearance at the Newcastle meeting, but at the last minute the insurance people jibbed at giving us proper cover for our machine for the journey and racing.

G-EBOI has been having extensive alterations made to the petrol system in an endeavour to cure its unfortunate habit of cutting out when taking off with the tank less than half full. This machine is now serviceable, so we hope to increase our flying times next week.

The Bristol and Wessex Aeroplane Club.

[Sec.: C. S. Clarke, Channel Road, Walton Park, Clevedon, Som.]

The Bristol and Wessex Aeroplane Club have now made definite arrangement for the Air Day in Bristol on Wednesday, June 22.

The first meeting is at Filton Aerodrome at 2.30, where admission is free to the General Public.

It opens with a display and fly past of the various machines present, there are to be two Handicap races open to all comers, and a Utility Competition for light aeroplanes, the pilot having to assemble the wings, start the engine, fly once round the course, land, refold the wings and wheel the machine to an agreed place.

The Air Ministry are sending down a flight of exhibition machines, while intermixed with these events one of the Bristol Aeroplane Co.'s pilots will give exhibitions of crazy flying.

Anyone joining the Bristol and Wessex Club during the afternoon will be given a free flight.

Sir Sefton Brancker is to be officially welcomed at the aerodrome during the afternoon by the Lord Mayor of Bristol and is holding a meeting in the evening at 8.30 at the Victoria Rooms, Bristol, supported by the Lord Mayor and Col. Woodcock, M.P., President of the Club, admission being free to this meeting as well.

Any visitors by air will be cordially welcomed at Filton.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Courtney Prentice, "Hazeldeil," Stowmarket.]

The Club consists of Pilot, Observer and Associate Members. Pilot Members are entitled to receive instruction in flying, and in addition when qualified, to hire the machines of the Club. Observer Members

are entitled to two hours free flying per annum as passengers and "joy-rides" at a special charge. Associate Members are entitled to short flights on certain days at a small charge. All members on joining are entitled to a free flight.

Subscriptions (a) Pilot Member £3 3s. per annum and Entrance Fee £3 3s. (b) Observer Member £2 2s. per annum and Entrance Fee £2 2s. (c) Associate Member 10s. 6d. per annum and Entrance Fee 10s. 6d.

Cheques should be made payable to the Suffolk Aeroplane Club and crossed " & Co."

The Norfolk and Norwich Aero Club.

[Sec.: H. O. Bennett, 5, Opie Street, Norwich.]

At 4 p.m. on Wednesday, June 8, the first D.H. Moth belonging to the Club arrived at Mousehold Aerodrome piloted by Mr. H. S. Broad. It was accepted on behalf of the Club by Mr. C. F. Lines, who has been appointed the Club's instructor. Many people will remember him as one of the original group of Air Transport and Travel pilots (popularly known at the time as Airco). Since then Mr. Lines has been doing firm work.

Owing to a slight hitch in connection with the insurance, instruction is for the moment being held up, but the Club hopes to make a definite start on July 1. Up to the present only Mr. Lines has flown the Club Moth.

The Club House has been well furnished and is very comfortable. It is on the North side of the aerodrome at the Western end of the sheds and the name is painted on the roof. Intending visitors are asked to keep a sharp lookout for sheep and cattle, as these are always grazing on the aerodrome. If machines which wish to land at the aerodrome will make one circuit the animals clear very quickly as they have been carefully trained in their duties and are now more or less used to the warning.

GNATURAL HISTORY.

The following notes record the recent doings of the Gnat Aero Co. at Shoreham Aerodrome and Portslade:—

The whole firm (Pashley, our secretary, ground engineer, boy and self) have all been travelling every-where in search of pieces of Avro (not "pieces of eight") with which to replace various and sundry components which were lacking in ATU owing to our pupil's contumacious with the fence, as faithfully reported recently.

Things are brightening now at Shoreham, the vanguard of the visitors is keeping us moderately busy with flips, the Eantam is flying regularly and well, Pashley is getting quite skittish with it—See large bills:—"Daring exhibitions on special machines, by well-known pilots"—also the dual machine comes back into commission to-day—A.I.D. and weather permitting.

Sunday, May 23, after hearing of Lindbergh's success, we held an "Air-Mindedness Day," cutting prices from 5s. a flight to 3s. a flip,—a distinction with a definite difference. It was a most successful day in every way and everybody was satisfied except the accountant.

Among our aerial visitors we numbered the Australian aspirant, Mr. Rooke, on his Moth, he came and went as a prophet unhonoured, I fear, although he showed almost indecent interest in the various green baize bags and things which he has tacked onto the fuselage.

As proof of our progressiveness we are installing a telephone and a petrol pump for the convenience of visitors. The former has now arrived and I have to spend most of my spare time watching it, as everybody is so fascinated that they ring up everybody else on the least pretext, the £5 worth of calls which the canny Post Office insists on in advance being nearly used already.



THE INAUGURATION OF THE NORFOLK CLUB'S MOTH.—On left Mr. Dawson Paul and and Sq. Ldr. Rea, next but two Mr. Holmes (who presented the Moth), Mr. Rice, the Sheriff (with chain), Mr. Bignold (the Lord Mayor), Mr. Broad (in background), Mr. North (with hand on cowl), Mr. Clark (right shoulder forward), and Mr. Lines (the Club Instructor, hands behind back).

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Visit the Royal Air Force Display at Hendon, 2nd July, 1927.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 21; Tuesday, 27; Wednesday, 25; Thursday, 22; Friday, 20; Saturday, 25; Sunday, 11.

IMPERIAL AIRWAYS LTD.:

Paris—London; London—Brussels—Cologne: Machines 69, passengers 690, freight 22 tons.

AIR UNION:

Paris—London: Machines 32, passengers 71, freight 15 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 14, passengers 61, freight 2 tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 17, passengers 72.

SABENA:

Brussels—London: Machines 14, passengers 61.

PRIVATE:

Machines 13, passengers 2.

Total number of trips by British Machines, 80, carrying 571 passengers. Foreign Machines, 77, carrying 265 passengers.

Comparative Figures:

Week ending June 12:

Machines, 157; Passengers, 957; Crews, 258; Total personnel, 1,215.

Corresponding week, 1926:

Machines, 125; Passengers, 717; Crews, 155; Total personnel, 872.

Corresponding week, 1925:

Machines, 117; Passengers, 703; Crews, 181; Total personnel, 884.

Corresponding week, 1924:

Machines, 116; Passengers, 391; Crews, 287; Total personnel, 678.

Corresponding week, 1923:

Machines, 121; Passengers, 378; Crews, 203; Total personnel, 581.

Corresponding week, 1922:

Machines, 106; Passengers, 168; Crews, 135; Total personnel, 303.

Corresponding week, 1921:

Machines, 91; Passengers, 300; Crews, 107; Total personnel, 407.

Corresponding week, 1920:

Machines, 94; Passengers, 194; Crews, 117; Total personnel, 311.

Croydon Notes.

There is much speculation as to what will happen if Messrs. Chamberlin and Levine fly to Croydon. Will there be anything of a crowd to greet them and will the Air Ministry make any special preparations? When Capt. Lindbergh arrived there were no arrangements made to keep the crowd in order, with results which will be long remembered.

Suppose that such a crowd again turned up to meet Messrs. Chamberlin and Levine. Such a supposition is extremely unlikely

as the psychological momentum caused by Capt. Lindbergh's flight and personality is lacking in the case of Messrs. Chamberlin and Levine. Also the chances are 7 to 1 (or 6 to 1, —Ed.) against their coming on a Sunday. Also they are not likely to receive the same "Press boost," because Atlantic flying like Channel swimming has now lost its heart interest and does not promise sob-stuff.

Therefore in the event of their arriving at Croydon the Air Ministry would be justified in making as few preparations as they did for Capt. Lindbergh.

If, however, on the other hand the arrangements are made and a huge crowd turns up and swarms over the aerodrome and causes a few accidents, we shall all be able to call the Air Ministry all the names we like and say that the last occasion ought to have "larned" them and what criminals they are. All of which will be satisfactory.

Anyhow, if people go and leave their cars on the aerodrome so that they are used as grandstands they have only themselves to blame.

But perhaps Messrs. Chamberlin and Levine will not come at all.

Mr. Youell had a curious experience when coming into the aerodrome on a V.10 recently.

When coming over the aerodrome to land the passengers were surprised to see blood all over the windows on one side of the cabin.

What happened was as follows: Mr. Youell saw a pigeon flying in front of him. Suddenly it became big and Mr. Youell realised it was flying right at him. He zoomed the machine up quickly, but the pigeon zoomed too and hit the nose of the machine with a bang and cannoned off into the left airscrew and went up in a cloud of blood and feathers. The remains lodged on the engine.

On landing the airscrew was found to be undamaged and the body of the pigeon was retrieved from the engine. It was found to be a homing pigeon and its insignia were removed and forwarded to the competent authority (O.C. Pigeons).

A report appeared in the papers recently that Mr. A. F. Muir of the Surrey Flying Service had crashed in flames at Port Talbot and had been badly hurt.

Actually Mr. Muir was giving an exhibition of stunt flying and somehow or other he flew the machine into the ground, wrote it off and was slightly hurt. Some time afterwards an idiot lit a cigarette and threw the match down into the petrol so that the wreck somewhat naturally went up in flames.

Mr. Muir is going on quite all right.

Unfortunately Mr. Smith wrote off the Surrey D.H.9 at Ostende. So the Surrey Co.'s luck is evidently out for the moment. However, the firm is one of the most reliable in the flying game, and neither accident will damage their reputation.

On an A.D.C. Aircraft D.H.9 Mr. Neville Stack is flying daily to Ostende with a load of newspapers. He began on June 6 and so far has 100 per cent. reliability.

Mr. Perry on Wednesday and Thursday flew to Norwich and back in a D.H.9a and a Bristol Fighter respectively in connection with the Norwich Club's Moth-Cirrus.—G. D.

Slot and Aileron Control.

"The ailerons with slots give full control down to the stalling point, and appear practically to eliminate risk of a serious accident through accidental stalling near the ground."

Air Ministry Report

on

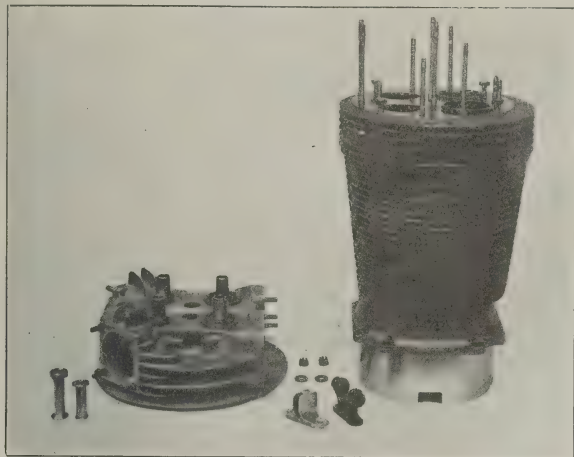
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No. 5. Cylinders.

The cylinder barrel is machined from a steel forging, 70 lbs. of metal being machined off each forging, the finished weight being approximately 18 lbs.

The integral steel head takes all explosion pressures and permits of the valves seating direct, obviating trouble from loose or faulty valve seats.

The fins, turned from the solid, are of a pitch and proportion giving the maximum efficiency, and are turned eccentric relative to the barrel, the maximum depth of fin being at the rear to compensate for the reduced air flow in this region and produce even cooling and freedom from distortion round the diameter of the barrel.

The head, which embodies the valve ports and carries the valve gear, is of aluminium alloy, of high heat conductivity, and makes a perfect face joint with the cylinder head, ensuring the maximum heat conductivity.

The joint is maintained by studs and set screws arranged to ensure uniform contact under all conditions.

Around the exhaust ports, where higher temperatures are attained, distance pieces of "Invar," a material of negligible coefficient of expansion, are fitted to compensate for the difference in expansion of the aluminium head and the steel securing studs, thus ensuring the retention of the desired tension on the studs. The joint obtained has a life of upwards of 500 hours without attention.

The exhaust ports are located directly in the air stream for maximum cooling effect, while the inlet ports are at the rear, sheltered to prevent condensation under cold conditions at altitude.

Two bronze rings spigot in the inlet ports of the barrel and the head, serving both to locate the head and to seal the inlet port joint.

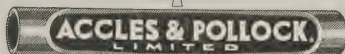
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THE ROYAL AERONAUTICAL SOCIETY.

OFFICIAL NOTICES.

The Edward Bask Memorial Prize.—This Prize is offered annually for the best paper received by the Society on some subject of a technical nature in connection with aeroplanes (including seaplanes). The value of the prize is twenty guineas. The closing date for entries is Sept. 30, and the closing date for the receipt of papers is Dec. 31.

Associate Fellowship Examination.—Provided that a sufficient number of entries are received, the Society's examination for candidates otherwise not qualified for Associate Fellowship will be held during the third week of September. Intending candidates should forward their entry forms as soon as possible, and in any case by Aug. 20.

Mr. C. R. Faircy wrote on Apr. 13, 1927:—"I have made it a rule among my Technical Staff that for anyone who will sit for the Associate Fellowship Examination and pass it, I will pay the whole expenses plus entrance fee and one year's subscription."

Following Mr. Faircy's generous lead the following have intimated that they will pay all expenses in a similar way:—Mr. T. O. M. Sopwith of the H. G. Hawker Engineering Co. Ltd. Sqdn. Commander J. Bird of the Supermarine Aviation Works. Mr. Siddeley of Sir W. G. Armstrong-Whitworth Aircraft Ltd. Mr. C. C. Walker of the de Havilland Aircraft Co. Ltd. and Mr. Thomas of the Bristol Aeroplane Co. Ltd.

THE I.A.E. AT CROYDON.

By kind permission of Imperial Airways Ltd. a party of members of the Institution of Aeronautical Engineers will be visiting Croydon Aerodrome on Saturday next, June 18, to study the working of the air line. Those wishing to join the party are requested to meet at the inquiry office of the Aerodrome at 2.30 p.m.

MORE APOLOGIES.

In *THE AEROPLANE* of June 8 under the heading "Commercial Aeronautics" a description of an illustration contained the statement that the Shell Company supplies Imperial Airways Ltd. with all their petrol and oil. This has produced sundry corrections, notably the information that a large proportion of the oil used by Imperial Airways is Castrol, supplied by C. C. Wakefield and Co. Ltd.

Further *THE AEROPLANE* is informed that petrol other than Shell is used on the Cairo-Basra line. One apologises to the readers of *THE AEROPLANE* and to the Wakefield firm and to the Shell Co.

NEW COMPANY.

BRITISH AEROTECHNICAL COMPANY LTD.—Private Co. Registered June 10. Capital, £1,000 in 25 shares. Objects: To develop and carry into commercial use and practical application scientific discoveries and inventions and especially to incorporate the principles and researches relating to aerodynamics and aeronautics into general engineering; to manufacture and deal in aerial conveyances and appliances of all kinds and component parts thereof, etc. The subscribers are: M. Adamtchik, 22, Bessborough Street, S.W.1, aeronautical engineer. G. Massera, 19, Frith Street, W, aeronautical engineer. Solicitors: Hutchison and Cuff, 6, Stone Buildings, Lincoln's Inn, W.C.2.

PERSONAL NOTICES.

DEATHS.

FORBES.—On June 9, at Marsa Scirocco, Malta, as the result of a flying accident, Haydon Marriott Sutherland Forbes, Lt.-Cdr. R.N. and Flg. Off. R.A.F.

Lt.-Cdr. Forbes was detached from the Navy for service with the R.A.F. in April, 1925. He was posted to No. 2 (Fleet Fighter) Flight H.M.S. *Eagle*, in March, 1927.

O'BRIEN.—On June 5, at Mtaragon, Lumbwa, Kenya Colony, Major A. K. O'Brien, late Queen's Bays and R.A.F., beloved husband of Monica Knapp O'Brien.

MARRIAGES.

BONHAM-CARTER-PALMER.—On June 1, at St. James's Church Paddington, David William Frederick Bonham-Carter, R.A.F., son of Mr. W. H. Bonham-Carter, of 5, Sussex Gardens, London, W.2, to Joyce Angela Palmer, younger daughter of the Rev. Canon and Mrs. H. J. Palmer, of 24, Warwick Gardens, Worthing.

PRESLAND-MACCALLUM.—On June 11, at St. Martin-in-the-Fields Reginald Clarence Presland, Flg. Off. R.A.F., of Walthamstow, to Eileen, eldest daughter of Mr. and Mrs. P. MacCallum, of Beckenham.

SCRIVEN-GRICE.—The marriage took place on June 10 at St. Margaret's Church, Westminster, between Flt. Lt. Victor Reginald Scriven, A.F.C., R.A.F., youngest son of Mr. and Mrs. E. J. Scriven, of Ealing, and Miss Hilda Jean Grice, youngest daughter of Sir John and Lady Grice, of Melbourne, Australia.

FORTHCOMING MARRIAGES.

BAKER-BONHAM-CARTER.—The marriage between Flt. Lt. John W. Baker, M.C., D.F.C., R.A.F., and Miss Hilary Bonham-Carter will take place at St. Mary's, Westerham, on July 23.

BANDON-CLIFTON.—The engagement is announced between Percy Ronald Gardner, Earl of Bandon, Flg. Off. R.A.F., elder son of the late Col. R. P. H. Bernard and of the Hon. Mrs. Charles Littleton, and Miss Marjory Sheila Clifton, only daughter of Lieut.-Col. Clifton, of Clifton Hall, Notts.

JONES-BEJANOFF.—The engagement is announced and the marriage will shortly take place between Flt. Lt. Arthur Reginald Jones, R.A.F., elder son of the Rev. and Mrs. O. A. Jones, of Hope, South Devon, and Marguerite, elder daughter of M. and Mme. P. Béjanoff, of Le Perreux-sur-Marne, France.

BIRTHS.

BORTHWICK-CLARKE.—On June 7, at No. 4 Flat, West End Buildings, Ruislip, to Dorothy, wife of Flg. Off. E. S. Borthwick-Clarke—a son.

HILL.—On May 29, at 82, Porchester Terrace, W.2, to Jane (née Mort), wife of Flt. Lt. Cedric W. Hill—a daughter.

NEWALL.—On June 12, at Cranfield House, Harefield, Middlesex, to Olive (née Tennyson Foster), the wife of Air Commodore C. L. N. Newall—a daughter.

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THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. C. GREGG

Vol. XXXII. No. 25.

SIXPENCE WEEKLY.

[Registered at the G.P.O.
as a Newspaper]

"WAS I FOR THIS NIGH WRECKED UPON THE SEA?"

(SHAKSPERE—Henry VI.)



SHANGHAIED :—Fairey IIIDs (Napier Lions) of the R.A.F., China, on the Race-Course at Shanghai, temporarily an aerodrome. Their adventures while getting there are described in the R.A.F. section of this issue.

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ON THE SAFETY FIRST COMPETITION—(Continued).

CONDITIONS.

From that we may now turn to the various Appendices.
 APPENDIX I. merely deals with the information required with the form of application for entry. The said information is fairly comprehensive, including as it does general arrangement drawings, and a general specification of the machine, together with information as to power plant installation, seating, area of vision for the pilot, placing of instruments and controls, results of wind tunnel tests and so forth.

APPENDIX II. deals with qualifying requirements. These include dimensional drawings and particulars for verification of stress analyses, in accordance with the methods approved for civil aircraft by the U.S. Department of Commerce or any recognised Government Department responsible for the issue of Airworthiness Certificates.

The engine or engines must have passed authenticated type tests and must use standard fuel. Also the engines must have mechanical or electric starters and the starting gear must be carried as a part of the aircraft throughout the Competition.

The minimum requirements in performance are: a top speed of 110 m.p.h. and a rate of climb of 400 feet a minute at 1,000 feet.

This is very sensible. An aeroplane whose top speed is less than 110 m.p.h. is perfectly useless for real cross-country travel, for it may have to buck against a wind of 40 m.p.h. and then its speed is reduced to that of land transport.

Another good point is that the machine shall carry a useful load of 5 lbs. per h.p.—"useful load" including pilot, observer, fuel, oil and any special instruments or equipment fitted by the Fund for the purpose of the Competition.

THE SAFETY TESTS.

The most important section of the book is APPENDIX III., which specifies the actual safety tests and demonstrations.

This begins with a note to the effect that devices by which the aero-dynamic characteristics of the aircraft can be varied while it is flying will be permitted subject to the following conditions:—

If the device be not automatic the operating control must be simple, quick in action and conveniently placed and must not involve appreciable physical effort.

If in the opinion of the Fund (that is to say, the judges and their advisers) the safety of the aircraft be prejudiced by depending on the operation of such devices the aircraft may be called upon to pass any or all the safety tests at one fixed setting of the device, in which case the rate of climb test be passed at the same fixed setting.

Then come the actual tests.

(1) To demonstrate the ability of the machine to fly and glide at lower speeds than is possible in present-day aircraft, thus reducing the risk in forced landings, the machine must fly level under full control at not more than 35 m.p.h. And it must be able to glide for three minutes with all power switched off at an air speed of not more than 38 m.p.h. During these tests the pilot must demonstrate that all the controls are properly effective at the minimum speed specified.

(2) To show that the aircraft can land safely in a small field it must land with all power switched off, and must come to rest within 100 feet of first touching the ground. This landing must be made in a straight line without side-slipping or trick flying.

Braking devices will be allowed provided that the machine is under full control until it has come completely to rest, and provided that the braking device does not seriously injure the surface of the landing field. That means that claw tail-skids are not allowed.

(3) To show that the machine can land in a small confined space it must glide in over an obstruction 35 feet high and come to rest within 300 feet of the base of the obstruction.

(4) To show that it can take off a small field the machine must leave the ground after running not more than 300 feet from a standing start, and it must then clear an obstruction 35 feet high at a distance of 500 feet from the starting place. That is all right as a test, but for practical purposes there is a vast difference between taking off over a string or a row of balloons in the face of even a slight breeze and taking off

over a solid wall of the same height where the wall causes a down-current.

(5) To show the gliding ability of the machine in case of engine failure, and alternately its ability to glide at steep angles to reach possible landing ground, the machine has to glide with all power switched off on a flight path making an angle of not more than 8 degrees with the horizontal, and it must also glide so that the flight path makes an angle of not less than 16 degrees with the horizontal. In each of these tests air speed must not exceed 45 m.p.h. and all controls must be fully effective.

(6) To show its stability the machine must be provided with means by which it can be trimmed to fly with the elevator control free at any speed between 45 m.p.h. and 100 m.p.h. and at any position of engine throttle.

A provision is here made that the elevator control must be moved to its full extent, either backwards or forwards, sufficiently to give a fair test of stability and then released and the aircraft must return to steady flight in its original attitude within a reasonable time. One imagines that there are some machines which would promptly loop the loop if the elevator control were moved backwards to its full extent.

The aircraft must also be capable of flying at any air speed between 45 m.p.h. and 100 m.p.h. for not less than five minutes in gusty air at any throttle opening with all controls left free.

(7) To show that the aircraft can recover from any attitude into which it may be thrown there are various tests of the ability of the pilot to maintain control in case of engine failure and to recover from violent disturbances.

These include switching off the engine, moving the controls so as to put the machine into an abnormal attitude and showing that it can be got under proper control again on a steady glide without losing more than 250 feet in height with the aid of the controls. And it must also show that without the use of the controls it will automatically recover to a steady gliding angle with a loss of height of not more than 500 feet.

(8) The machine has to show that under no conditions can the pilot completely lose control of it.

(9) The machine has to demonstrate also its manoeuvrability in a restricted area on the ground, the area in question being 500 feet by 500 feet.—That ought to give enough area to manoeuvre an air-liner.

REASONABLE CONDITIONS.

The general conditions strike one as being particularly reasonable. Competitors are allowed at least three attempts to pass any tests.

Alterations to the machines during the Competition may be approved but may entail re-qualification in tests already passed. Unauthorised alterations may entail disqualification.

Variations in the features of the aircraft which cannot be made by the pilot while flying, as for example altering wing angles, will be regarded as alterations.

The same design of airscrew must be used throughout the trial, and broken screws must be replaced by others of identical design. The settings of airscrew blades must be the same throughout the tests, except when the machine has a variable-pitch screw which can be varied while flying.

All the tests in the Competition will be done by pilots employed by the Guggenheim Fund, but competitors will be permitted to instruct the Fund's pilots in the tricks of their own particular machines.

THE RESPONSIBLE PARTIES.

Altogether the rules seem quite reasonable.

A foreword to the book of the words, signed by Mr. Harry F. Guggenheim, shows that the preliminary draft of the rules was made in the first instance with the technical advice of Professor Alexander Klemin, of New York University, and Major R. H. Mayo, of the Aircraft Operating Company, Ltd. (London), assisted by Mr. Archibald Black. In their final preparation Lieut. E. E. Aldrin was allowed to help by the courtesy of Assistant-Secretary of War Trubee Davison.

Also special consideration was given to the rules from the

DON'T FORGET THE R.A.F. DISPLAY ON JULY 2.

pilot's point of view by Major R. W. Schroeder (commonly known as "Shorty"), Lieut. James Doolittle (the famous racing pilot of the U.S. Air Corps), and Mr. J. B. Hill (one of the most experienced of the American air mail pilots)—which probably accounts for the amount of plain common-sense in the rules.

The Judges of the Competition are: Mr. Orville Wright, Chairman; Mr. F. Trubee Davison, Assistant-Secretary of War for Aeronautics; Mr. Edward P. Warner, Assistant-Secretary of the Navy for Aeronautics; Mr. William P. MacCracken, Jr., Assistant-Secretary of Commerce for Aeronautics; Commander R. E. Byrd and Dr. George W. Lewis.

The Technical Advisers are: Professor Alexander Klemin, New York University; Lieut. E. B. Aldrin, Massachusetts Institute of Technology, and Major R. H. Mayo, O.B.E.

On the whole this is not a bad Committee.

Mr. Orville Wright has done a good deal of thinking since he gave up flying some fifteen years ago, so his ideas ought to be fairly up to date.

Mr. Trubee Davison was a pilot and served with the Naval Flying Corps during the War, so he knows something of the practical side.

Mr. E. P. Warner has been up to the neck in Aviation since the beginning of flying, one's only doubt about him is that he handles a slide rule too well, that is to say, that he has something of the halo, or aura, of the scientist about him, which, despite his experience, is apt to make him suspect by the merely practical men.

Mr. MacCracken is a newcomer to aviation, so will at any rate be free from prejudices.

Commander Byrd is a very fine pilot. He is supposed to have flown round the North Pole, and at any rate he has done an immense amount of flying under difficult circumstances. So, like Mr. Davison, he can keep an eye on things from the pilot's point of view.

Doctor George Lewis, whom one had the pleasure of meeting at Washington, is certainly one of the brightest brains

THE NATIONAL FUND FOR THE PROMOTION OF AERONAUTICS.

The first committee meeting of The National Fund for the Promotion of Aeronautics was held at Welbeck House, on June 20. Those present were:—Brig.-General Lord Thomson, C.B.E., D.S.O., E. Soanes Lendrum, Esq., Mr. F. L. Barnard, Mr. A. G. Lamplugh, Flt. Lt. G. H. Reid, and Mr. Norman J. Hulbert.

Lord Thomson was elected Chairman of the Fund, and Mr. Norman J. Hulbert was elected Secretary. The Committee decided that the name of the Fund shall be "The National Fund for the Promotion of Aeronautics."

Lord Thomson, seconded by Mr. Lendrum, proposed that "The objects of this Committee shall be the promotion of aeronautical development in the British Empire and in addition to create and administer a Fund, the proceeds of which shall be devoted to the assistance and stimulation of all existing organisations without prejudice to the independence of the Committee to take such action as it may consider fit at any future date."

The following were appointed Trustees of the Fund:—The Lord Ossulston, Sq. Ldr. The Rt. Hon. F. E. Guest, C.B.E., D.S.O., M.P., E. Soanes Lendrum, Esq.

Lord Thomson promised to invite His Grace The Duke of Northumberland and Sir Charles C. Wakefield, Bart., also to become Trustees.

The National Provincial Bank Limited were appointed Bankers to the Fund, and Mr. William Owen, O.B.E., was elected Honorary Auditor.

The Committee will elect a President and Vice-Presidents.

THE ALDERSHOT TATTOO.

We are not a military nation. We know that. We have heard it so often. So we know it. We are not like those Germans and Frenchmen. They are military nations. They love soldiering. They love reviews. They go mad over soldiers. They are so military, those people.

We always tell ourselves that that is why the Germans lost the war and the French nearly lost it. That was a lesson to them not to be so military. But we are different. We are not a military nation, thank Heaven!

Presumably it is because we hate soldiering and militarism that somewhere about 50,000 of us Pacifists per night for five successive nights, go in acute discomfort to Aldershot and sit for several hours in pouring rain or the chilly night air, on hard narrow seats, to watch a display by soldiers, mock battles, tank attacks, air fights, etc., and then paddle through crowds through about a mile of loose sand or mud to our cars, chars-à-bancs, bikes, prams, or whatever vehicle in which we arrived. And unless we are of the fortunate minority who live or sponge on people in the district, we arrive home any time the next morning wet and cold inside and out having thoroughly enjoyed ourselves.

On Saturday afternoon as one was driving into Brighton

in American aeronautics. Although he is of a scientific turn of mind, he has an immensely practical outlook on everything to do with aviation, and he has an amazing power of demonstrating things to people who do not understand them. At any rate, he made certain scientific things in the Bureau at Washington almost comprehensible to one's own limited understanding. So he ought to be able to supply any deficiencies in the mental make-up or experience of the other judges.

Professor Klemin is a scientist of Central European origin who has a wonderful head for figures, but so far as one knows he has not been a practical aviator of any kind or constructional engineer.

Lieut. Aldrin started his aviation career immediately he left school in 1916, and has been in turn instructor of wind tunnel work for the N.A.C.A., instructor of the Army and Navy School of Aeronautical Engineering, chief of the Engineering Division of the Air Service, McCook Field, and in charge of instruction at the A.S. Engineering School. He learned to fly in 1919.

Major Mayo is well known to everybody in British aviation. He was one of the three unfortunate judges at the Lympne Competition in 1926 who came in for so much criticism over the disqualification of various machines. He has an excellent war record as a pilot, and still flies quite often enough to keep his experience up to date, and his reflexes in practice. And he is a very useful practical engineer. Therefore, in spite of his scientific attainments, the sole British representative among the officials is quite well chosen.

In his foreword Mr. Harry Guggenheim says:—

The Daniel Guggenheim Safe-Aircraft Competition has been prompted by a conviction of the necessity and feasibility of aerodynamic safety. Its object is "to achieve a real advance in the safety of flying through improvement in the aerodynamic characteristics of heavier-than-air craft, without sacrificing the good practical qualities of the present day aircraft."

Let us hope that Mr. Daniel Guggenheim's good money may achieve its object.—C. G. G.

about 4 p.m., one saw half a dozen fully loaded chars-à-bancs starting out on the 70-mile drive to Aldershot. Presumably they returned to Brighton about 5 a.m. on Sunday morning having spent the time from 6 p.m. the previous evening in a howling gale and torrential downpour.

If we heard of those military Germans or Frenchmen doing such a thing we Pacifists would say, "How disgustingly military. It ought not to be allowed."

The Tattoo from beginning to end was a triumph of organisation. It opened with massed bands which continued until it was dark enough for the burning of Moscow to the tune of 1812. Appropriately enough at the finish Moscow was left a glowing red (its present colour) for the rest of the evening. This was followed by a musical ride, after which the Battle of Blenheim was fought with true politeness and gentleness, which amused all of us non-militarists immensely.

Then followed the chief aerial interest, which was a fight between two Hawker Woodcocks (Bristol Jupiters) and a Vickers Virginia (two Napier). First a Woodcock came spinning down in flames (and just pulled out, above the arena) and finally the Virginia, burning furiously, disappeared over the trees onto the aerodrome, giving a fine impression of a real crash.

Then followed a furious five minutes of modern warfare in which tanks played the chief rôle. The Pacifists present shrieked their approval.

Then came a march past of various uniforms of the past and the khaki of present warfare, with battle bowlers and gas masks complete. The non-militarists kept their loudest cheers for the khaki.

The display ended with a most impressive artificial sunset and a firework display.

If we say we are not a military nation, the truth is not in us, and we are a nation of humbugs.—G. D. [Which we are.—C. G. G.]

MR. FRANK COURTNEY'S PLANS.

Mr. Frank Courtney has been busy for some time making plans for a series of long-distance flights. The first of these, from England to America and back, will probably start from Calshot in the second week of July. His navigator and second pilot will be Flg. Off. F. W. M. Downer, R.A.F., who is at present stationed at the R.A.F. base at Calshot. Mr. Bob Little, well known to all at Croydon aerodrome will go as engineer.

The machine used will be a Dornier Wal, the actual machine on which Amundsen attempted to fly to the North Pole. It has been re-equipped with two Napier Lion engines.

Mr. Courtney tried originally to get a British machine on which to make his series of flights, but unfortunately he was unable to do so.

The exclusive story of the preparations for the flight and of the flight itself will appear in *The Westminster Gazette*.

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CHANCE has not entered into the success of the NAPIER LION.

It is the result of continuous improvement and development, the employment of highest grade materials only, the most skilled engineers and a rigid system of inspection and testing.

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THE ROYAL AIR FORCE.

The London Gazette.

June 14.

GENERAL DUTIES BRANCH.—Flg. Off. M. H. Jenks (Capt., Glos. Regt., R.A.R.O.) is transferred to the Stores Branch on probation (May 30); Flt. Lt. J. A. G. Haslam, M.C., D.F.C., is placed on the retired list at his own request (June 10); Flg. Off. F. W. M. Downer is transferred to the Reserve, Class A (June 10). The notification in the *Gazette* of May 3 concerning Flg. Off. A. L. Ottway is cancelled.

STORES BRANCH.—The following officers are transferred to the Reserve, Class B (June 17):—Sq. Ldr. E. D. Galloway; Flg. Off. L. R. Peirce. The following are transferred to the Reserve, Class C (June 17):—Sq. Ldrs.—T. G. Gordon, M.B.E., W. L. Shaw, M.B.E., G. E. Stagg, M.B.E. Flt. Lts.—R. Adams, H. B. Hawker, J. Roberts, J. A. Plunkett, T. Surr. Flg. Offs.—R. O. Bamber, R. Bassett, F. A. Ormerod, H. J. Thomas, C. St. J. Vaughan.

ACCOUNTANT BRANCH.—Flt. Lt. (Acting Sq. Ldr.) G. H. White (Capt. and Asst. Paymaster, R.A.P.C.) relinquishes his temp. comm. on return to Army duty (June 13).

MEDICAL BRANCH.—The following are granted S.S. comms. in the rank of Flg. Off. for three years on the active list, with effect from and with seniority of, June 1:—E. P. Carroll, G. W. McAleer, M.B. RESERVE OF AIR FORCE OFFICERS.—GENERAL DUTIES BRANCH.—C. W. Harvey is granted a comm. in Class A.A., General Duties Branch, as Plt. Off. on probation (May 16) (Substituted for the notification in the *Gazette* of May 31); J. R. Wardrop is granted a comm. in the General Duties Branch, Special Reserve, as a Plt. Off. on probation (June 14).

The following officers on probation are confirmed in rank:—Flg. Offs.—A. J. G. Anderson, E. B. Worsley Bartlett, W. G. Gunning, R. H. Lemon (June 7).

Plt. Offs.—F. G. Wayman (June 1); I. J. C. Harding (June 7); J. H. Simpson, R. E. Watson (June 14).

Plt. Off. S. Summerfield is transferred from Class C to Class A.A. (June 1). The following are transferred from Class A to Class C:—Flt. Lt. E. E. Deans, D.S.C. (June 14); Flg. Off. T. W. G. Cattell (June 3).

Appointments.

Week ending June 20.

GENERAL DUTIES BRANCH.—Wing Commanders J. C. Quinell, D.F.C., to No. 10 Group H.Q., Lee-on-Solent, for Air Staff duties, 10/6. C. C. Miles, M.C., to R.A.F. Depot, Uxbridge, 10/6.

Flight Lieutenants D. E. Ward, to Air Ministry, Directorate of Training, 6/5. P. R. T. J. M. I. C. Chamberlayne, A.F.C., to No. 13 Sqn., Andover, 10/6. Richards Harrison, D.F.C., to No. 30 Sqn., Iraq, 25/5. H. W. Clayton, to No. 39 Sqn., Spittlegate, 6/7.

Flying Officers Ernest Whittles, M.B.E., to Home Aircraft Depot, Henlow, 1/6. J. C. Lewis, to No. 28 Sqn., India, 21/5. C. W. McK. Thompson, to No. 43 Sqn., Tangmere, 15/6. C. E. N. Guest, to No. 15 Sqn., Martlesham Heath, 1/7.

Pilot Officers Horace Waring, to No. 480 Flight, Calshot, 13/5. E. G. Olson, to No. 27 Sqn., India, 20/5. C. D. G. Welch, to No. 5 Sqn., India, 20/5.

MEDICAL BRANCH.—Squadron Leader J. T. T. Forbes, to the Central Medical Board, 21/6.

Flying Officer N. I. Smith, M.B., to R.A.F. Depot, Uxbridge, 23/6. STORES BRANCH.—Flying Officer J. J. Ironmonger, to Aircraft Depot, Iraq, 10/6.

A Fatal Accident.

The Air Ministry regrets to announce that as the result of an accident at Stamford to a Sopwith Snipe of the Central Flying School, Wittering, on June 16, Flt. Lt. Humphrey William Baggs, the pilot of the aircraft, and Flg. Off. Sydney Fleetwood Bell, were killed.

Night Flying in Kent.

Air Ministry *Notice to Airmen* No. 48 of 1927 states:—

Within the area bounded by lines joining Epsom, Horley, Tonbridge, Wrotham, Dartford and Epsom, R.A.F. aircraft will be flying every night, Saturday and Sunday excepted, during the period July 4 to Aug. 13 inclusive.

As the aircraft will not exhibit their navigation lights after attaining a height of 5,000 feet, civil aircraft flying in this district after sunset should keep below this altitude.

The R.A.F. Memorial Fund.

The Right Honble. Lord Revelstoke, P.C., G.C.V.O., has been appointed a Trustee of the above Fund in the room of the late Viscount Cowdray, P.C.

The other Trustees of the Fund are the Right Honble. Lord Hugh Cecil, P.C., M.P., and Marshal of the Royal Air Force Sir H. M. Trenchard, Bart., G.C.B.

The Second Attempt on the Flight to India.

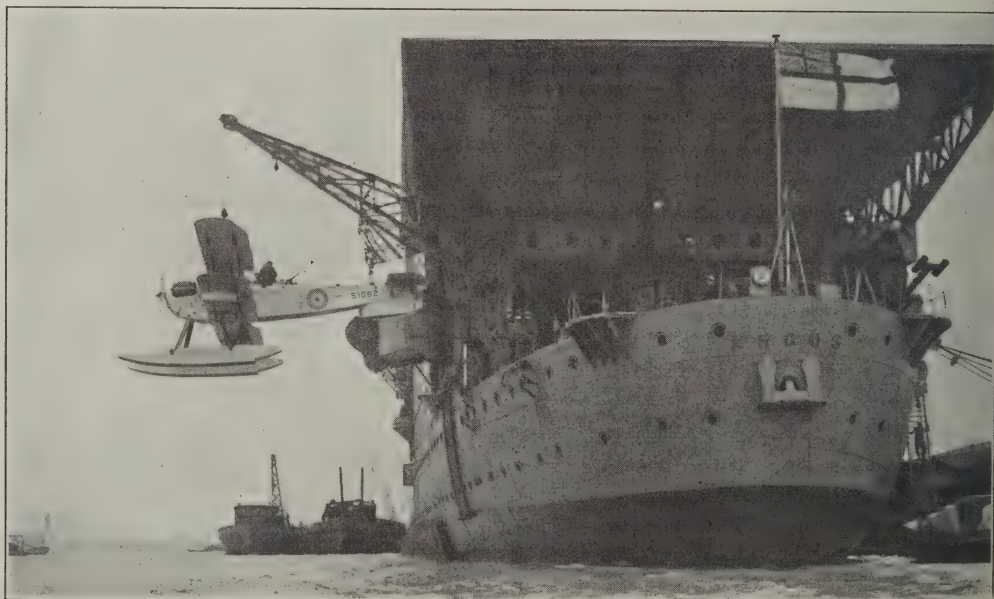
On Saturday, June 18, Flt. Lt. Carr and Flt. Lt. Mackworth started from Cranwell at 12.41 hours on the Hawker Horsley in their second attempt to break the World's Long Distance Record, and incidentally to fly to India non-stop, but were compelled to land at Martlesham, some 80 miles away.

The machine had been ready to start on the 15th in spite of the East wind, but apparently there was some trouble about the petrol supply, which was generally reported as being a leak in the petrol tank. The trouble has since been reported as a defective union in a petrol pipe, which really is a matter which casts no reflections on the design or construction of either the engine or the actual aeroplane as such.

On the 16th and 17th bad weather and adverse winds prevented the start. By the 18th the wind had changed and everything looked favourable.

The actual get-off was an anxious business as with still more petrol on board than at the first attempt the machine ran more than 1,000 yards before leaving the ground. By that time it was so near the limits of the aerodrome that if it had refused then to lift it would almost certainly have run into a fence before it could stop. When it did leave the ground it lifted quite well.

About 1 hour and 20 minutes afterwards the machine landed at the Aircraft and Armament Experimental Station at Martlesham Heath. Those who were on the aerodrome saw three Horsleys coming over, one of them leaving behind what looked like exhaust-smoke, but keen observers said that it was a spray of liquid. In either case the trouble was



THE FLEET AIR ARM. Slinging a Fairey IIID (Napier) overside from H.M. Aircraft Carrier "Argus," in Shanghai Harbour.



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

an excess of oil delivered to the engine. One gathers that the engine has been taken out and sent to the Rolls-Royce Works at Derby to have the oil circulation system examined.

The landing at Martlesham seems to have been a distinctly emotioning affair. Mr. Bulman, the Hawker Co.'s test pilot, who was in one of the escorting machines, seeing that Flt. Lt. Carr would have to land, flew ahead at full power to Martlesham to warn the staff there.

In spite of the bad surface of the Martlesham Aerodrome, consisting largely of heather scrub, Flt. Lt. Carr put the machine down perfectly. He brought it close to the ground and then gave it enough engine to keep the weight mostly air-borne on the wings till the wheels were actually on the ground. After which he eased off the engine and let the wheels take the load gradually.

In a way this was a dangerous thing to do, for if a tyre had burst (as had happened earlier in the day) and the machine had turned over while the engine was still running there would naturally have been a greater chance of the whole thing catching fire. On the other hand, by flying the machine onto the ground instead of letting it glide onto the ground with an inevitable bump, there was less chance of bursting a tyre or breaking any part of the undercarriage.

As usual, Flt. Carr's judgment was justified, and he did something which has never been done before, namely, he got safely onto the ground again with a machine fully loaded for a long-distance record flight.

When one remembers that one machine in America has been crashed just after taking off in a test for a long-distance flight, and that another crashed before it got off the ground at all, and that only the other day so skilful a pilot as Capt. Pelletier Doisy crashed his machine in landing just after his start, Flt. Lt. Carr's success is the more noteworthy.

One hears through an indirect but reliable source that Flt. Lts. Carr and Mackworth had instructions, though not actual orders, from the Air Ministry that if they had to land during the first few hours of their flight they were to take to their parachutes and abandon the machine. Undoubtedly they would have been justified in doing so over Martlesham Heath where the machine would have had a very good chance of getting down without falling into a closely inhabited area.

But, if one's source of information is reliable, Flt. Lt. Carr argued that if he did so there would be such an outcry in certain directions (presumably political), and such a fuss would be made about the affair in the Press, that there would be an end to all British attempts at long-distance flights. Therefore he determined to take the risk of making a proper landing, and here again his judgment was justified.

One fears that this does mean the end of British attempts on the Long-Distance Record at any rate for this year. The monsoon is now in full blast in India, and even if an attempt were made at the next full moon the flight would have to stop at Karachi because of monsoon weather beyond that point.

There is, of course, a chance that an attempt may be made some months hence after the monsoon is over. That would, of course, mean flying through longer nights, but one doubts whether that fact alone would be enough to stop the pilots, if they could get permission from the Higher Authorities. The ill luck which Flt. Lt. Carr has suffered at his two attempts is certainly not likely to stop him. And anyhow there is an old superstition that a third attempt at any venture is always likely to be successful.

People should remember that the great French flights towards the East which we are out to beat were not by any means first attempts. Many of the earlier long-range flights were failures, and even they were not begun until machines and engines of similar types had been flown for long distances round and round set courses in France to make sure that aeroplane controls and engine installations and so forth were absolutely perfect.

Undoubtedly something has been learned from these two failures, and in each of them Flt. Lt. Carr has proved himself in entirely different ways to be a pilot of the first class on whom complete reliance can be placed to achieve success in such undertakings. Therefore all we can do is to wish him better luck next time.—C. G. G.

The First Attempt to Fly to India Non-Stop.

An excellent, if entirely unofficial, account of the ending of the first attempt to fly to India non-stop was published in *The Western Mail* of June 15. This reads as follows:—

Mr. A. F. Hill, whose home address is 5, Woodfield Road, Panteg, Mon., has sent home from Abadan a most graphic account of the flight, gathered first-hand from the two officers. He writes:—

The steamship *Donax* berthed about 5 a.m. on the 25th and the aviators gave us a description of their flight and the adventurous time which they had experienced. After a somewhat thrilling and anxious "take off" from Cranwell all went well up to within an hour of their having to make a forced landing.

During the greater part of their flight they maintained an average ground speed of 110 m.p.h., and according to their calculations the Mercator distance of their flight was 3,440 miles in 43 hrs. 35 mins,

while they reckoned their actual flying distance to be about 3,600 miles.

On Friday night, the 20th, when passing over Anatolia, they encountered a heavy rainstorm, and were unable to recognise anything in the pitch darkness. It was almost with as much relief that they saw the dawn break on Saturday as they did on the following day, Sunday.

From Constantinople onwards, the favourable winds, which they had confidently looked forward to, never materialised, and in the neighbourhood of Baghdad they ran into a heavy dust storm. The strong head winds which they encountered increased their petrol consumption to such an extent that only 100 gallons remained in their tank when forced to alight.

This, they calculated, would have enabled them to fly until day light and across the Baluchistan frontier, but not to make Karachi. Their difficulties were greatly increased by the fact that one tank, of capacity about 80 gallons, was not feeding properly.

Neither had been able to get any sleep, and the continuous strain was beginning to tell; in fact, to quote their own words, "The instruments and gauges began to grin and make faces" at them.

With very little warning the engine showed signs of distress, heated up excessively, and Lieut. Carr, who was piloting, sensing that the engine was about to "konk out," descended to a height of about 2,000 ft., and warned Lieut. Gillman, who was standing by his side, to return to his seat. Lieut. Gillman had no sooner done so than the engine suddenly cut out.

With the aid of the moon Lieut. Carr chose as his landing-place what he imagined to be a long stretch of beach. This stretch of beach turned out to be moonlit water.

At 3.15 a.m. on the night of May 21, the nose of the 'plane dived into the sea, and the 'plane turned turtle, the two occupants continuing their flight for another 20 ft. or so. Lieut. Carr was subsequently heard to register a vow that in future he would avoid the practice of landing on moonbeams.

The spot was charted to 45 miles S.E. of Bunder Abbas and within three miles north-west of the Quoin Light, which is situated on the "Little" Quoin Island, to the north of, and close to, the Oman Peninsula.

Both succeeded in swimming back to the derelict machine, which, fortunately, was kept afloat by the large petrol tanks. The parachute attachment went adrift, and pieces of it bobbing up and down in the water closely resembled sharks' fins.

The whole of their provisions were lost with the exception of one tin of bully-beef, which when opened appeared to be so unpalatable that they threw it away.

Sheikh Mohamed Nizam, the lighthouse-keeper, who had heard the noise of the approaching aeroplane, followed by sudden silence, had pluckily set out in a small boat with the certainty that an accident had occurred. But after some hours' fruitless search, he returned to the island to await the dawn.

The experiences of the night for the two officers on the upturned 'plane can be better imagined than described. They tried to remove the wheels with the intention of using them as floats in case the 'plane sank, but a tin-opener and a fork proved to be inefficient tools for the purpose.

One can imagine with what relief they saw the dawn break. After drifting for hours further away from land they had serious thoughts of swimming to the shore. Provisionally before they had finally decided to do so a rowing boat appeared in sight. It proved to be Sheikh Mohamed, who landed them on the island at 9.30 a.m. and proved a most hospitable host, placing all he had at their disposal.

From the top of the lighthouse they saw what would have been their fate if they had attempted to swim ashore, as the gulf in that vicinity is one of the most shark-infested waters in the world.

It took the airmen no time to obtain a number of volunteers—for a small monetary consideration—to make an attempt to save the machine by towing it ashore on the understanding "No cure no pay," but the current and tide were so strong that after two and a-half hours' hard pulling the 'plane was further from the shore than when they started.

Distress signals were hoisted, but two steamers passed too far distant to notice them, and it was not until nearing dusk that Capt. Arnfield of the steamship *Donax*, passing within a mile, saw the signal and sent a boat ashore.

They landed at Abadan in excellent health and spirits and none the worse for their trying experience.

The Slaughter of the Hyderabad.

The R.A.F. Display Committee are determined to make our flesh creep this year. The "Air Battle for London" is one of the most gruesome spectacles they have evolved yet. A rehearsal of this display of frightfulness was held at Hendon on June 16, and one is of the personal opinion that it needs censoring.

Admittedly the gas-bomb and wing-tip-flare experts ought to have some sort of a show, and, equally, it is rather hard on the A.A. gunners if they are made to appear ineffective, but at the same time it is a morbid and somewhat unnerving sight to see a couple of unfortunate Hyderabad and a couple of Nineaces lurching down onto the aerodrome in a most realistic display of flames and smoke.

[But is it any more gruesome than one of those brilliant actors from the ranks of the British Army giving a nightly exposition of having a bullet in his stomach as seen always at the Royal Tournament at Olympia. The difference seems to be that we (the Great British Public) are used to dying of bullets in the stomach and not to being shot down, in flames.—C. G. G.]

The Units taking part in the Battle are No. 39 (Bombing) Sqdn D.H.9as, No. 99 (Bombing) Sqdn. Hyderabad, No. 19 (Fighter) Sqdn. Grebes, and No. 29 (Fighter) Sqdn. Grebes.

The Squadrons approach the scene of action from different

THE AVIATION BALL

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The National Fund for the Promotion of Aeronautics

will be held at the

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on

THURSDAY, 30th JUNE, 1927 (10 p.m.—3 a.m.)

Under the distinguished patronage of

H.R.H. THE PRINCE HENRY, K.G.

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The Lady Maud Hoare.

The Duke of Atholl, K.T., G.C.V.O., C.B., D.S.O.

The Duchess of Atholl, D.B.E., M.P. (Parliamentary Secretary to the Board of Education).

The Duchess of Bedford.

The Marquis and Marchioness of Cholmondeley.

The Marchioness of Londonderry,

The Earl of Birkenhead (Secretary of State for India).

The Lord Thomson of Cardington, C.B.E., D.S.O.

The Lord Ossulston (Trustee of the Fund).

The Lady Louis Mountbatten.

The Lady Margaret Douglas-Hamilton.

The Hon. Lady Bailey.

Mrs. Wilfred Ashley.

Squadron Leader The Right Hon. F. E. Guest, C.B.E., D.S.O., M.P. (Trustee of the Fund).

The Right Hon. Sir Laming Worthington-Evans, M.P. (Secretary of State for War).

The Right Hon. Neville Chamberlain, M.P. (Minister of Health).

The Right Hon. David Lloyd George, O.M., M.P.

Wing Commander Louis Greig, M.V.O.

F. G. L. Bertram, Esq. (Deputy Director of Civil Aviation).

E. Soanes Lendrum, Esq. (Trustee of the Fund),

and many others.

Music by TEDDY BROWN

and his

CAFÉ de PARIS BAND

(By kind permission of the Café de Paris).

**Demonstration of Ballroom Dancing by
MISS GEM MOUFLET and Partner.**

Valuable prizes have been kindly presented.

TICKETS, £2 2s. 0d. each, inclusive of Aviation Supper and Buffet, may be obtained from the Honorary Organiser, Mrs. E. Soanes Lendrum, Welbeck House, W.1; or from the Secretary of the National Fund for the Promotion of Aeronautics, 34, Broadway, Westminster, S.W.1.

points of the compass and proceed to demolish each other to the best of their ability.

While this is going on in the air the A.A. guns keep up incessant fire from the ground. At the rehearsal the guns were represented, somewhat unconvincingly, by one airman with a Very pistol. The gas experts were also being economical with smoke on this occasion, but on the great day itself no doubt there will be a lavish output of smoke and A.A. gunnery.

The method of producing all this flame and smoke is jealously guarded secret, but someone was heard to ask someone else how to spell stannic chloride.—C. M. MCA.

R.A.F. Rifle Association.

A Group Miniature Rifle League was organised in October, 1926, by the R.A.F. Rifle Association with a view to (a) keeping trained personnel in touch with rifle shooting during the winter months; (b) training young shots; (c) to provide a useful Service form of recreation during the winter; and (d) to raise the standard of musketry throughout the Service. A silver cup, ten silver medals and twenty bronze medals have been presented by Nobels Industries Ltd.

A competition has been organised in two stages. In the first stage the Units in each Group shoot on the League principle, each team within the Group shooting against each other. The second stage is run on the knock-out principle between the champion teams of the Groups. Thirty-six teams competed in the first stage, nine teams from the Bombing Area, eight from the Fighting Area, eight from No. 23 Group, four each from No. 21 Group and Cranwell and three from No. 10 Group.

The final result was 1st, Cranwell, 2nd, Henlow, 3rd, Sealand. The Cranwell Team were Flt. Lt. R. S. Greenslade (196), Flg. Off. E. C. Delamain, M.C. (190), P.S. C. H. Spary (190), Cpl. A. V. Hulce (190), Flt. Lt. J. L. K. Pearce, O.B.E. (188), Lt. A.C. S. M. Davies (185), Sgt. F. C. J. Fry (183), and Flt. Lt. F. H. Ronkelcy, M.C. (182). Total, 1,504. The Captain and coach was F.S.F. A. Holden.

The runners-up, Henlow, Captain and coach Sq. Ldr. J. Kemper, M.B.E., scored 1,470.

No. 5 Flying Training School, Sealand, won third place owing to their very high average in the first stage and on account of their score in the second stage being the highest apart from the winners and runners-up.

THE AIR FORCE CLUB OF BRITISH COLUMBIA.

A banquet was given by the Air Force Club of British Columbia on June 2 at the Hotel Grosvenor, Vancouver, in honour of Sq. Ldr. J. H. Tudhope, Officer Commanding the Vancouver Unit of the Royal Canadian Air Force, Jericho Beach, who is leaving to take charge of the first Canadian Air Mail Service. Wing Cdr. Robert Leckie (apparently on his way home from the Far East), Major D. R. MacLaren and Major D. Bell-Irving, all of whom served with the Flying Services during the War 1914-18, were also present.

During the evening Major MacLaren was re-elected Chairman of the Club, Major Bell-Irving was re-elected Vice-President, and Mr. Leonard Miller (of 55 Squadron, R.F.C.) was re-elected Secretary and Treasurer.

Speaking at the banquet, Wing Cdr. Leckie, who had been serving in H.M.S. *Hermes* in China, said that the triple circle (the R.A.F. Standard and Service markings) was flying over all the British concessions in the East. The aircraft were used almost entirely in a neutral capacity. Aggressive methods were little employed. He did not wish to speak of the situation in China and he thought the present feeling was "Least said soonest mended." A number of machines of British and United States manufacture had been found in China when the R.A.F. Units arrived there. They had been manned by Russian pilots and mechanics and had later vanished into Northern China.

The British Air Ministry had spent the last ten years in perfecting the military machine and he believed that within a very short time a total of 52 Squadrons for Home defence would be reached. In the R.A.F. the Squadron Numbers were being retained and reputations of new Squadrons were built on traditions won in battle.

Sq. Ldr. Tudhope described the work being done by the Air Force Club in British Columbia. He expressed the opinion that an air mail would be developed in British Columbia in the near future.

A USEFUL ALLY.

People in the Royal Air Force or connected therewith who wish to be thoroughly well informed on Service matters should make a point of reading *The Army, Navy and Air Force Gazette* regularly in future. Considerable changes have taken place in the paper recently, and Major W. E. de B. Whittaker, who was on General Ashmore's Staff in the London Defence Area during the War and is well known to many readers of *THE AEROPLANE*, has undertaken to direct the policy of the paper.

Major Whittaker proposes to deal each week with the latest Service developments, of Armies, Navies and Air Forces, British and foreign. As the paper makes progress there will be articles on strategy, tactics, organisation, and so on, dealing with all three Services. As Major Whittaker has been himself closely concerned with aircraft, though not serving in either of the Flying Services, since 1910 or thereabouts, he is fitted to deal with air affairs with intimate knowledge and experience. Consequently, full attention will be paid to the R.A.F., though an endeavour will be made to consider the question of air defence as a whole.

For the benefit of those who do not already know the

paper one may say that *The Naval and Military Gazette* began in 1834. *The Army and Navy Gazette* was founded in 1860. Then somewhere in the '70s, *The Army and Navy Gazette* bought the older paper. After the War 1914-18, another Service publication called *The Broad Arrow* was purchased, and consequently *The A. N. and A. F. Gazette* is not only the oldest but the most comprehensive of all weekly papers dealing with Service affairs.

The office of the paper is at 22, Essex Street, W.C.2, and specimen copies of the Gazette may be had post free.

AIR AFFAIRS IN PARLIAMENT.

TRANS-ATLANTIC ENVY IN THE HOUSE.

In the House of Commons on June 13, Viscount SANDON asked the SECRETARY OF STATE FOR AIR whether any conclusion had been drawn from the success of Captain Lindbergh's trans-Atlantic flight as to the relative merits of the design of his monoplane for long-distance flights as compared with that of aeroplanes used for such purposes in this country and if so whether any steps were being taken to profit by such experience. SIR PHILIP SASSOON said that Captain Lindbergh's flight had been noted with admiration and interest. The merits of the monoplane for long-distance flights were well known to aircraft designers and this type would no doubt be considered for any aircraft in which the extreme range was the main consideration. The aircraft used in the recent long-distance flights by the R.A.F. had in all cases been Service machines, in the design of which factors other than range had to be taken into account.

LORD SANDON asked whether the same thing applied to the Chamberlain flight to Berlin and SIR PHILIP SASSOON replied that they had not had an opportunity of examining their machine.

CAPT. GARRO-JONES asked if it were not a fact that under the Air Ministry Regulations this particular type of machine would be condemned as not being airworthy owing to the restricted field of vision forward, and if so would the Ministry alter the regulations? SIR PHILIP SASSOON asked for notice of that question.

In the House of Commons on June 15, in reply to a question by CDR. BELLAIRS, the UNDER-SECRETARY OF STATE FOR AIR said that as the report of the so-called "Morrow" Committee, in discussing the air organisation which was in their view most suitable for the United States at the present time, explicitly drew attention to the different circumstances in Great Britain, it would not appear that any useful purpose would be served by placing copies of this Report and of the evidence taken before the Committee in the Library. CDR. BELLAIRS thought that Members of the House should have the benefit of seeing the Report as we had had no public inquiry of any kind into air affairs in this country. SIR PHILIP SASSOON did not think there was a widespread desire that the document should be placed at the disposal of Members. But if it were so the Report should be made available together with the subsequently published Report of the Congress Select Committee which contained much striking information with regard to overlapping, lack of co-ordination and so on. CDR. BELLAIRS said that the Morrow Committee covered the whole ground while the Congress Committee dealt with contracts. He then asked the PRIME MINISTER in view of the fact that we had never had a public inquiry into the relations of aviation, civil and military, to the fighting forces, whether he was aware that what was known as the Morrow Committee in America in 1925 came unanimously to opposite conclusions to those on which our air development was being conducted and that Congress had accepted this Report and controversy had ended in America; and whether the Government would now hold an impartial public inquiry into the Air position of our Empire.

The PRIME MINISTER said that he had nothing to add to the statement which he made on the subject of our defence organisation in general and the Air Ministry in particular on Feb. 25, 1926, some three months after the date of the so-called Morrow Report. CDR. BELLAIRS thought that a public inquiry would reassure the public. MR. BALDWIN was not at all sure that the public wanted reassuring.

FRIGHTFULNESS AT HENDON.

In the House of Commons on June 15, in reply to a question by LT.-CDR. KENWORTHY, the UNDER-SECRETARY OF STATE FOR AIR said that it was intended to present an episode at the annual Air Force Display at Hendon of aircraft in action and the bombing of buildings etc., and the firing at native ground forces. He did not share the hon. and gallant Member's fears in regard to the probable effect on public opinion of the presentation of a wholly imaginary scene of this kind. LT.-CDR. KENWORTHY thought it rather odd of place when we were trying to bring about peace at Geneva that we should have this mimic warfare represented to the people of this country. MR. E. BROWN: "What about the Naval Manoeuvres?" [The Hon. Member might also have asked what about the hundreds of thousands of British Pacifists who shout themselves hoarse with joy at the mimic battles at Olympia and Aldershot?—C. G. C.]

THE AIR OPERATION IN 'IRAQ.

In the House of Commons on June 15, in reply to a question by LT.-CDR. KENWORTHY, the SECRETARY OF STATE FOR THE COLONIES said that the 'Iraq Government had not hitherto established effective administration in the Penjin and Shahbaz districts which, as a result, had become rallying points for bandits and disaffected tribal elements who constantly preyed upon the neighbouring villages. Consequently it had been decided in April last to take steps to bring the areas in question under the authority of the 'Iraq Government and a force composed partly of 'Iraq Air Force Units and partly of 'Iraq Levy Units accordingly occupied Penjin on Apr. 22. The force was supported by a Royal Air Force Unit. No serious opposition had been encountered. The British officers normally attached to the Units concerned had taken part in the operations and so far as he was aware there had been no British casualties.

LT.-CDR. KENWORTHY: "Have any British officers been engaged in gathering taxes in this or other areas in 'Iraq?" MR. AMERY: "No, Sir. These operations were not concerned with gathering taxes but with bringing these districts into effective administration and preventing ill-disposed persons from using them as centres for raiding." MR. E. BROWN: "Will there be any extra cost to the British taxpayer because of these operations?" MR. AMERY: "No, Sir."

A "CIRRUS" TESTIMONIAL

The following unsolicited testimonial has been received and is published as further proof of the remarkable robustness of A.D.C. "CIRRUS" engines.

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"Yours faithfully,

"(Signed) THOMAS McCracken,

"Ground Engineer."

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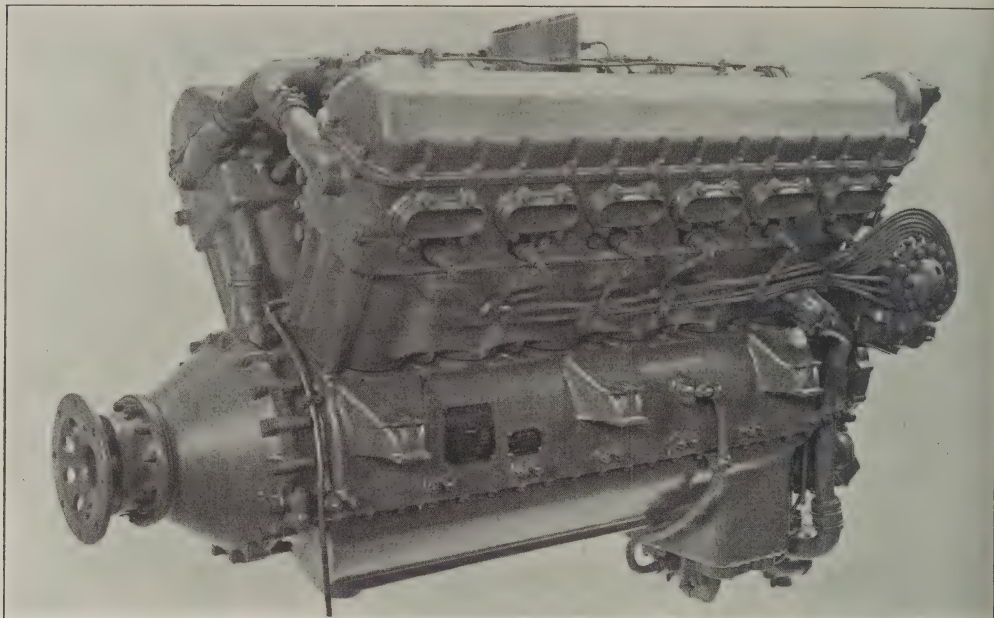
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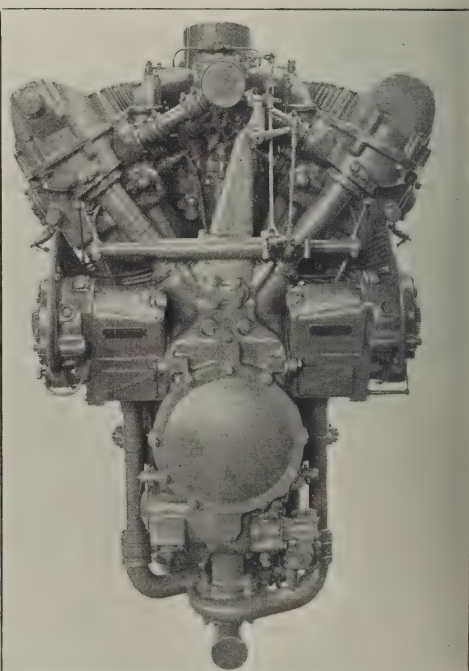
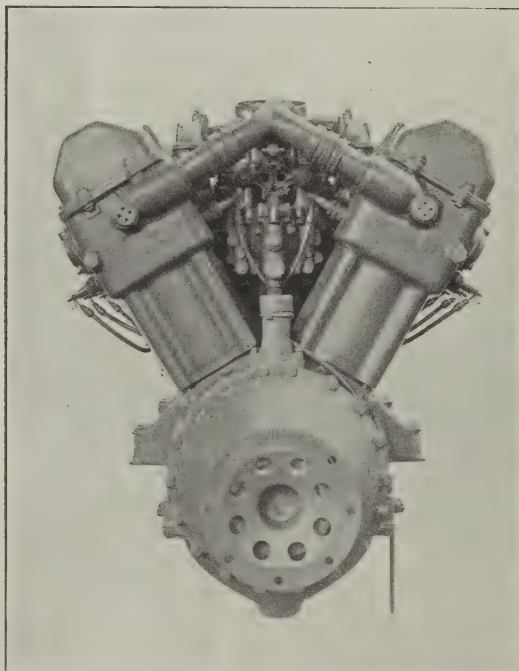
A NEW ROLLS-ROYCE PRODUCT—The F.10—of 485 h.p.

For some months past rumour has been busy with the name of Rolls-Royce, alleging that a new engine in the Falcon series, which was of such outstanding value during the War from 1916 onwards, was to be produced. THE AEROPLANE is therefore glad to have the privilege of being the first paper to illustrate and describe this latest step in the progress of that famous firm.

This new engine is known as the Rolls-Royce F.10. It

is a 12-cylinder Vee engine of 5 in. bore and 5.5 in. stroke, and will be fitted with a reduction gear later. The engine has recently successfully passed its official type-test of 100 hours at the first attempt, and has been granted an airworthiness certificate.

Aluminium is very largely used in the construction of the F.10. Each block of six cylinders is formed from one aluminium casting of a special alloy, with inserted steel cylinder-



PROJECTED AREAS.—The aircrew end and wheel-case end of the F.10, showing the small area for head resistance.

CHARLES C. DICKSON 127

THE PRIVATE OWNERS



CHOOSE MOTHS

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

barrels, in direct contact with the cooling water, and is of quite unusual construction.

The cylinder-heads and gas passages are formed integrally with the cylinder castings, and inserted seatings are used for the two inlet and two exhaust valves in each cylinder.

The cylinder blocks are secured to the crank-case by long studs passing through the complete depth of the cylinder casting, and they abut on the crank-chamber by means of flanges formed on the cylinder-liners.

The pistons are of forged aluminium alloy and the steel connecting-rods are of the superimposed type.

The crank-shaft is arranged to be coupled at the driving end either to an airscrew shaft carried in an extension piece bolted to the crank-chamber, or to the pinion of a spur-type reduction gear by means of the patented Rolls-Royce drive which relieves the shaft of all bearing loads due to the gear.

The valves are worked by a single overhead cam-shaft carried on each cylinder block, operating through rockers. The scheme has been ingeniously arranged so that each valve has its own independent rocker. The valve mechanism is lubricated by low pressure oil and is completely enclosed.

The inlet valves are situated towards the inside of the Vee between the cylinder blocks, in which space are carried two double carburettors, each throat feeding three cylinders.

Ignition is by two completely independent 12-cylinder magnetos driven by a cross-shaft at the wheel-case end of the engine. One magneto deals with the sparking plugs on the inlet sides of the engine (that is to say inside the Vee) and the other magneto with the plugs near the exhaust valves on the outside of the cylinder blocks.

There are two scavenging pumps and one pressure pump for the lubrication system, situated within the oil sump.

AIR TRANSPORT IN MALAYA.

For some months past negotiations have been in progress for the establishment of one more link in the chain of Imperial air routes.

During a recent visit of Mr. R. C. Kemp, Managing Director of the Air Survey Company Ltd., to Singapore, he submitted definite proposals for an Air Service in Malaya.

Associated with Mr. Kemp in the management of the Air Survey Company are Col. C. H. D. Ryder, C.B., C.I.E., D.S.O., late Surveyor-General of India, and Mr. F. P. Raynham. During the past three and a-half years this Company has become thoroughly acquainted with the whole route from India to the North of Borneo in all seasons.

The present proposals, which are being favourably received by the Governments concerned, by important shipping companies, and by commercial houses, provide for a daily service between Penang, Port Swettenham, and Singapore. And if, as it is hoped, a system of co-operation with the Dutch can be arranged, extensions to Belawan (Deli) in Sumatra, Muntok in Banka, and Batavia, will be added.

To carry out and maintain this service the formation of a new company, to be called "Eastern Airways Ltd.," is proposed and on the Board of Directors some of the largest commercial interests in the East will be represented.

Designs have been prepared of two entirely new types of seaplanes. It is considered that these machines will prove to be far in advance of any aircraft yet produced.

Both types will be monoplanes constructed entirely of metal. One will be fitted with three engines of 450 h.p. and be capable of carrying a crew of two, 18 passengers and just under one ton of freight with fuel sufficient for 275 miles.

The smaller type will have one engine of 450 h.p. and will carry a crew of two, six passengers and mails to the extent of 180 lbs. and have a range of 350 miles.

The main operating base will be at Singapore, where a large hangar, slipway, offices and stores will be erected.

At Penang it is proposed to provide similar facilities with the addition of a very completely equipped workshop capable of dealing with all machine and engine overhauls and repairs.

Such an establishment should prove a very valuable Imperial asset in the case of war, as its situation should be ideal for assisting to maintain the supply of aircraft to units of the Air Force stationed in the East.

At Batavia and Belawan provision is made for hangars, slipways, offices and stores. And at all these bases and also at Port Swettenham and Muntok wireless stations, rapid fuelling facilities, moorings, and motor-boats will be provided.

A machine will fly each way between Singapore and Penang daily except Sundays, leaving at 1.0 p.m. and arriving at 5.13 p.m. Going north it will call at Port Swettenham after 1 hour 58 minutes flying, and going south after 1 hour 45 minutes.

Singapore to Belawan will be flown each way three times per week in 4 hours 13 minutes, allowing for a half hour halt.

Batavia to Singapore will be flown each way twice a week in 5 hours 50 minutes, with a halt at Muntok.

It is hoped that an adjustment of the time table at a later date will make it possible to complete the journey from Penang or Belawan to Batavia via Singapore in one day.

One scavenger pump evacuates oil from the front end of the engine and delivers into a well at the rear end, where the whole of the drainage oil is then ejected from the engine by the second scavenger pump.

The pressure pump delivers high pressure oil to the crank-shaft journals, and connecting-rod big- and little-ends. The overflow from the high pressure system is led through two blow-off valves in series back to the crank-case, the cavity between these valves forming a source of low pressure oil for lubricating the valve gear and any other low duty bearings not dealt with by splash lubrication.

This scheme of lubrication provides that in the event of an engine being partly disabled the first bearings to be starved of oil will be the low duty ones, which run on for some considerable time after the supply has ceased.

A water-pump is carried on the bottom of the wheel-case at the rear of the engine having a double volute with a lead to each cylinder-block.

The whole of the outlet water from the cylinders is carried serially through two induction-pipe jackets, with the exception of the two small water leads provided to maintain circulation at the rear ends of the blocks.

A hand starting-gear of the throw-out worm-and-nut type, fitted with a safety device in the form of a set-up clutch is incorporated in the wheel-case. Provision is also made for fitting a gas starter.

A petrol pump of the gear pattern fitted with a special form of gland, is carried on the wheel-case, and also a gun gear, the drive of which can be readily adjusted for timing.

The engine is rated to develop 485 h.p. at 2,100 normal r.p.m., corresponding to a Brake Horse-Power Mean Effective Pressure of 140 lbs. per sq. in.

The times to Penang and Belawan will be subject to alterations on two days each week in order that they may connect with the outward and homeward bound mail ships.

The projected fares will range from \$43 to Port Swettenham, \$82 to Penang, and \$117 to Batavia.

The full advantage of the acceleration to the European mails will not be gained until this service is linked up via Rangoon and India to England, but even with the service as at present planned there will be considerable saving.

Letters posted at noon in Singapore will catch the home-ward-bound ship from Penang the same evening which will make it possible to answer letters of the same week.

The advantages to local mail and passenger traffic will be enormous. Singapore, Batavia, Kuala Lumpur, Penang, and Northern Sumatra, the main centres of commercial activities in Malaya, will be brought within a few hours of one another.

Quite apart from the increased opportunities for business that rapid transport cannot fail to bring about, there is little doubt it will prove to be a real boon to residents.

Owing to the somewhat trying climate of most of the big centres periodical visits to hill stations are necessary for the majority of the European population. With air transport, visits to these places will be possible at week-ends, and the travelling will be cool and exhilarating in itself.



THE AIR SURVEYORS.—Messrs. R. C. Kemp, E. W. Bishop, R. Thorne, N. Vincent (who is leaving to run an allied concern) and S. H. Trower.



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THE PRAGUE AERO SHOW.

On June 4 the fourth International Aeronautical Exhibition was opened in Prague under the patronage of the President of the Czechoslovakian Republic. This year's exhibition was particularly interesting in view of the noteworthy developments in aviation in Czechoslovakia during the past two years, and this interest is heightened by the success of several Czechoslovak aircraft in international competition abroad.

The exhibition was held in the permanent building used by the Prague Sample Fair and occupied a space of about 3,000 square metres.

The following countries were represented:—Czechoslovakia, Great Britain, France, Germany, Italy, Poland, Roumania, Sweden, and Yugo-Slavia.

VICKERS, LTD. represented the whole of the British Aircraft Industry. They showed a very complete collection of Aircraft accessories, instruments and armament, together with a collection of photographs of Vickers Aircraft. A description of the Vickers exhibits will be found elsewhere in this issue.

The products of Vickers Ltd. are represented in Czechoslovakia by Honorary Consul Taussig, who is shown in one of the photographs with General Caddell and Captain Dickson, who had charge of the Vickers stand, and Major Kopecky, Secretary of the Czechoslovakian Aero Club.

Close to the Vickers stand was the Czechoslovakian Section, and naturally the Home Industry occupied the largest space.

AERO TOVARNA LETADEL, PRAGUE, showed a new all-metal two-seat reconnaissance biplane fitted with a 450 h.p. Lorraine-Dietrich engine, known as the A-30.

They also showed the A-29 two-seat seaplane fitted with the 240 h.p. Breitfeld-Danek Perun II engine, and the A-11, fitted with a 300 h.p. Skoda-Hispano-Suiza engine, which has been built to the order of the Finnish Government.

AVIA, PRAGUE, showed the B.H.11 two-seat monoplane on which Mr. V. Bican won the 1926 Coppa d'Italia, the B.H.20 single-seat advanced training biplane fitted with an 85 h.p. Walter engine, the B.H.25 six-seater commercial biplane fitted with a 450 h.p. Lorraine-Dietrich engine, the B.H.26 two-seat fighter fitted with a 450 h.p. Bristol Jupiter engine, the B.H.28 two-seat fighter fitted with a 385 h.p. Armstrong-Siddeley Jaguar engine, the B.H.29 two-seat primary training biplane fitted with an 85 h.p. Walter engine, and the B.H.33 single-seat fighter fitted with a 450 h.p. Bristol Jupiter engine.

All these machines are described elsewhere.

VOJENSKA TOVARNA NA LETADLA, PRAGUE, otherwise the Military Aircraft Factory, showed the S-16 two-seat reconnaissance biplane fitted with the 450 h.p. Lorraine-Dietrich engine, the S-18 two-seat training or messenger biplane fitted with a 60 h.p. Walter engine, and the S-20 single-seat fighter fitted with the 300 h.p. Skoda-Hispano-Suiza engine.

FOREIGN EXHIBITORS.

In the French section, Avions H. and M. Farman showed a Farman F.170 commercial biplane fitted with one 500 h.p. Farman engine and the Etablissements Lioré et Olivier showed the L.O.125.

French aero-engines were represented by the Renault and Salmson companies, and the accessories by the Société du Carburateur Zenith, the Anciens Etablissements Barbier, Bénard et Turenne, the Société Française du Duralumin, the Compagnie Internationale de Navigation Aérienne, etc. In addition, there was exhibited a number of diagrams, moving models, and a comprehensive selection of aeronautical propaganda material.

The German Aircraft Industry was represented by a number of aircraft constructing firms, a list of whom have already been published in THE AEROPLANE, who showed collectively some twenty models of modern German aircraft.

Siemens and Halske showed a number of their air-cooled radial engines, Askania-Werke a number of accessories and instruments, and Kartographische Reliefgesellschaft m.b.H. some relief maps made from aerial photographs.

The Italian section included a number of models of aircraft, notably the Savoia 55, as used by the Marchese de Pinedo, on his flight round the Atlantic, and the Fiat A-20 single-seat fighter.

The Societa Anonima F.I.A.T. showed the 420 h.p. A-20, the 525 h.p. A-22 and the 900 h.p. A-25 engines, all of which were shown at Paris last December. The Isotta-Fraschini company showed the 500-550 h.p. Asso engine, which was also seen at the last Paris Salon.

Poland was represented by the Liga Obroni Powietrznej Panstwa (the League of Polish Aviators) who exhibited diagrams, photographs, literature and propagandist material concerning Polish aviation.

On the Roumanian stand was shown four aircraft, a two-seat messenger biplane with a 180 h.p. engine built by the Military Arsenal at Bucharest, a two-seat school monoplane fitted with an 80 h.p. engine, built by the Schiel Works at Brasnov, a two-seat reconnaissance biplane fitted with a 375 h.p. engine, and built by the Astra company at Arad, and a

two-seat reconnaissance biplane fitted with a 450 h.p. engine and built at the works of the Explostaris Technice at Bucharest. A very interesting exhibit of Roumanian oil and petrol constituted a special feature of the stand and a number of drawings and photographs of various productions of the Military Arsenal were also shown.

Yugo-Slavia was represented by an interesting sports monoplane fitted with a 60 h.p. Anzani engine and built by S. Vlakovic a Synove of Belgrade, which created quite a good impression.

Sweden was represented by the Aktiebolaget Flygindustri, of Limhamn, who showed a number of models of Swedish-built Junkers aircraft.

The Czechoslovakian Ministry of Posts and Telegraphs, the Ministry of Public Works and the Meteorological Institute, showed diagrams, models, photographs, statistics, air stamps, and other material concerning the various departments.

Hereafter follows descriptions of the exhibits of Vickers Ltd., the sole British exhibitor, and those of the three aircraft manufacturers which constitute the Czechoslovakian Aircraft Industry.

VICKERS, LTD.

Vickers Ltd. showed on their stand at the Prague Show a very complete collection of aircraft accessories and armament.

These included sundry petrol system accessories, aircraft electric lighting generating equipment, Davis navigation lights, and the Reid Control Indicator.

In the centre of the stand was a section of a Vickers steel fuselage on which was mounted a Vickers-Scarff wind-balanced gun mounting and two Vickers belt-feed guns, with C.C. gear and sights.

They also showed oleo-pneumatic undercarriage units, the Eagle automatic electric air camera and mounting, the Hythe Mark III gun camera, Holt landing-light brackets and flares, the 3.45 inch electric launching tube for flares, and specimen boards showing sections of tie-rods and Raf-wires.

Bomb-racks for 20-lb., 112-lb., 230-lb., and 520-lb. bombs, together with specimens of 20-lb., 50-lb., 112-lb., 230-lb., 520-lb., and 550-lb. bombs were representative of this branch of Vickers activities.

Other notable features of the armament section of the stand were the Vickers-Scarff wind-balanced gun mounting Nos. 7 and 8, together with single and twin gun attachments for these mountings.

Finally, large frames showed a number of photographs of recent Vickers aircraft.

Vickers Ltd. are the largest suppliers of aircraft accessories in the World and their stand devoted solely to such equipment attracted considerable attention.

MILOS BONDY AND CO.

By far the biggest and most important exhibit at the recent Aero Show held at Prague was that of Milos Bondy a Spol., the manufacturers of Avia aircraft.



BRITISH REPRESENTATION AT PRAGUE.—From left to right: Capt. Dickson and General Caddell, both of Vickers, Ltd., Major Kopecky, Secretary of the Czechoslovak Aero Club, and Consul Taussig, Representative for Vickers Ltd. in Czechoslovakia.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



THE AVIA B.H.22.—A single-seat advanced training biplane fitted with an 180 h.p. Hispano-Suiza engine.

They showed the B.H.11 two-seater monoplane (60 h.p. Walter engine), the B.H.20 single-seater advanced training biplane (85 h.p. Walter engine), the B.H.22 single-seat advanced training biplane (180 h.p. Hispano-Suiza engine), the B.H.25 six-seater commercial biplane (450 h.p. Lorraine-Dietrich engine), the B.H.26 two-seater fighter (450 h.p. Bristol Jupiter VI engine), the B.H. 29 two-seater primary training biplane (85 h.p. Walter engine) and the B.H.33 single-seater fighter (450 h.p. Bristol Jupiter VI engine).

All but one of these machines are of recent design and with the exception of the B.H.11, which is a comparatively old but exceedingly successful design, and the B.H.26, which was exhibited at the last Paris Show, none of them have been seen in public before.

Since 1924, Avia aircraft have achieved considerable international success and a short review of these past successes will tend to show how the progressive firm of Milos Bondy a Spol has forced its way into the front rank of European aircraft designers and constructors.

The B.H.11 is a modern development of the B.H.9. This latter machine, fitted with a 60 h.p. Walter engine, has at various times visited nearly all the European capitals. The more notable of these long-distance flights are the Prague to Rome and back by way of Belgrade, by the late Dr. Zdenko Lhota, Prague to London and back by Lieut. Jira, and the non-stop flight from Prague to Paris and back, also by Lieut. Jira, a total distance of approximately 1,120 miles.

The B.H.11, which is essentially the same as the B.H.9 with only slight modifications made as the result of experience gained on the earlier flights, has also accomplished a number of long European tours, and in addition won the Italian Coppa d'Italia in 1925 and 1926, and also the French Light Aeroplane Competition at Orly in 1925 in the face of very keen international competition.

In 1925, the Avia company produced the B.H.21 single-seater fighter fitted with a 300 h.p. Hispano-Suiza engine and this machine was adopted as the standard single-seat fighter in the Czecho-Slovak Air Force. In the 1925 speed competi-

tions at Prague, standard machines of this type made speeds of 154 and 149 m.p.h., the latter speed being made with the machine carrying a useful load of 550 lbs. And a racing version of this machine fitted with clipped wings and a boosted engine, won the President's Trophy with a speed of 186 m.p.h. over a 200 km. (124 miles) course.

In 1926, a machine of this type won the Belgian single-seater competition at Brussels against powerful French and Italian opposition and the constructional licence for this machine was acquired by the Belgian Government. The first batch of Belgian-built Avia B.H.21s is now being delivered by the S.A.B.C.A. company to the Belgian Army.

In 1927, a B.H.33 single-seater fitted with the 420 h.p. Jupiter engine was entered for the single-seater fighter competition organised by the Roumanian Government at Bucharest. This machine in the official tests climbed to 5,000 m. (16,400 ft.) in 8½-9 mins., as against 16 mins. made by the next best competitor and made a maximum speed of 164.5 m.p.h. as against 160.2 by the nearest competitor.

It is very satisfactory to note that British engines, notably the Bristol Jupiter and the Armstrong-Siddeley Jaguar, are being used with considerable success by this company, and it has been noted in the French press that an Avia B.H.33 fitted with a Jupiter engine that competed at a flying meeting at Bucharest on May 29 showed itself to be one of the finest existing single-seater fighters and that it possessed a marvelous climb.

THE AVIA B.H.11.

The Avia B.H.11 is a two-seater low-wing monoplane fitted with a 60 h.p. Walter engine. The actual machine shown was the winner of the 1926 Coppa d'Italia and the French competition at Orly. This machine has already been described on several occasions and is fairly generally known. It carries a useful load of 240 kgs. besides fuel for four-hours and has a top speed of 150 km.p.h.

It is in use in the Czecho-Slovak Air Force as a messenger and advanced training machine as is the earlier version known as the B.H.9 together with the B.H.10, a single-seater of the same type but of smaller all-round dimensions.

THE AVIA B.H.20, B.H.22 AND B.H.29 TRAINING MACHINES.

The B.H.20 is a single-seater transitional training biplane fitted



THE AVIA B.H.25.—A 5-8-seater commercial biplane (450 h.p. Lorraine-Dietrich engine) which is being supplied to the Czecho-Slovak and Roumanian Governments.

AVIA AIRCRAFT

The most efficient single seater fighter of the world,

AVIA B.H.33

with "Jupiter" engine.

Speed, 270 km.p.h.

Ceiling, 10,000 metres.

5,000 metres in 8 min. 30 sec.

7,000 metres in 14 min. 30 sec.

AVIA B.H.11

Winner of the most important international competitions for touring planes.

AVIA B.H.25

Commercial aircraft for 5-6 passengers used on the Czechoslovak international air lines.

AVIA B.H.29

Walter 60, 85 or 110 H.P.

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THE TWO-SEATER FIGHTER TYPE

AVIA B.H.26

with "Jupiter" engine

proves to be SECOND TO NONE on the world.

Speed, 242 km.p.h.

5,000 metres in 14 min.

Ceiling, 8,600 metres.

AVIA, PRAHA, VII-799.



THE AVIA B.H.26.—A high-performance two-seater fighter fitted with a 450 h.p. Bristol Jupiter engine.

with an 85 h.p. Walter engine. It is built on the same lines as the B.H.22, but is of smaller size and has a slightly lower performance. Structural details are identical with the B.H.22.

The B.H.22 is a single-seater advanced training biplane fitted with a 180 h.p. Hispano-Suiza engine. In reality it is the B.H.21 single-seater fighter fitted with the lower-powered engine and a modification of equipment.

Fuselage, wings, tail-unit and undercarriage are the same for both machines but in place of the military equipment of the B.H.22, the B.H.26 carries a camera-gun for aerial fighting training purposes. It possesses a very good all-round performance—a top speed of 215 km.p.h., a climb to 5,000 m. in 22 minutes and a stalling speed of 80 km.p.h.—and performs the function of a very economical transitional machine for fighting pilots.

A variant of this machine, known as the B.H.23, is supplied as a night fighting training machine and except for the provision of lighting equipment and navigation lights together with wing-tip landing lights and landing flares is identical with the B.H.22.

The B.H.29 is a two-seater training machine fitted with an 85 h.p. Walter air-cooled radial engine. It has a plywood fuselage and staggered wings of the orthodox wood and fabric structure.

The wing area is large and the wing loading low—only 28 kgs. per sq. metre. Top and bottom wings are in two sections and are braced by "N" struts and the usual wire bracing. The undercarriage is of the axle-less type and consists of two units each of three struts, the longest of which is provided with a rubber-in-compression shock-absorber. These shock-absorbing units together with the tail-skid springing and shoe are easily removable and renewable.

SPECIFICATIONS.

B.H.20.	B.20.
Span	7.9 m.
Wing area	16.1 sq. m.
Weight empty	330 kgs.
Useful load	150 kgs.
Weight loaded	480 kgs.
Speed, max.	160 km.p.h.
Speed, stalling	60 km.p.h.
Ceiling	5,500 m.
Range	3 hours

THE AVIA B.H.25.

The Avia B.H.25 is a single-engined commercial biplane fitted with a 450 h.p. Skoda-Lorraine-Dietrich "W" type engine. It is designed to carry from five to eight passengers besides pilot and navigator or mechanic.

The fuselage is built up of a wood skeleton with no wire cross-bracing and is covered with plywood. The engine mounting, which is a separate unit, is built up of steel tubes. Any engine of from 400 to 600 h.p., either air or water-cooled, can be installed. For water-cooled engines, a honeycomb radiator is mounted in the nose, the upper portion of which forms a water tank.

The passengers' cabin, 2.6 m. long by 1.3 m. wide by 1.8 m. high, has comfortable accommodation for five or six passengers. At the rear of the cabin is a lavatory and the entrance door, and when the machine is at rest on the ground this door comes fairly low. There are three circular windows on either side of the cabin, all of which are openable, and a large transparent skylight in the roof which can be used as an emergency exit. The walls of the cabin are upholstered with leather which effectively insulates the cabin from noise and engine fumes.

The pilot's cockpit is situated immediately behind the engine in front of the wings and has accommodation for pilot, on the starboard side, and mechanic or wireless operator. The controls are normal joystick and rudder-bar and there is a small hand wheel for the adjustment of the tail plane. There are two baggage compartments, one under the pilot's cockpit and one aft of the cabin, access to both being by means of outside doors.

The main fuel tanks are mounted under the top plane. The oil tank is carried in the engine mounting.

The single bay wings are of wooden construction and are built up of two box spars, ribs and stringers, with plywood covering back to the rear spar. The whole is then covered with fabric. The top plane is of less span than the bottom and the two sets of parallel wooden interplane struts slope inward towards the top. Interplane bracing is by the usual streamline wire. Ailerons are fitted to all four wings and are operated by direct push-and-pull rods.

The tail unit consists of adjustable tail plane, elevators and balanced

rudder. All controls pass outside the fuselage where they are completely accessible.

The undercarriage consists of two Vees of streamline steel tube and a cross axle. The back legs of the Vees are fitted with rubber-in-compression shock-absorber units which are enclosed in streamline casings.

SPECIFICATION.

Span	15.3 m.
Length	12.82 m.
Height	4.49 m.
Wing area	63.5 sq. m.
	450 h.p. Lorraine-Dietrich engine.
Weight empty	1,950 kgs.
Load:—	
Crew (2)	160 kgs.
Passengers	400 kgs. (5)
Petrol	320 kgs.
Oil	40 kgs.
Freight	100 kgs.

Weight loaded	2,970 kgs.
Wing loading	47 kgs./sq. m.
Power loading	6 kgs./h.p.
Speed, max.	190 km.p.h.
Speed, cruising	160 km.p.h.
Speed, landing	60 km.p.h.
Range	480 km.
Service ceiling	4,500 m.

A number of these machines of this type is in use by the Czechoslovak Air Transport Co. on its lines which link up with the main international routes of Europe, and the Roumanian Government have purchased a batch of B.H.25 which will be used on the lines to be inaugurated this year.

THE AVIA B.H.26.

The B.H.26 is a two-seater fighter fitted with a 450 h.p. Walter-Bristol Jupiter engine, and was designed on the basis of experience gained with the B.H.21 Jupiter-engined single-seater fighter. The structure of the machine follows standard Avia practice and is of all-wood construction, with the exception of the detachable engine mounting. In outline, it can be considered as an enlarged edition of the B.H.21, which is nearly equals in performance and manoeuvrability.

The wing structure consists of two box spars, ribs and stringers, covered with plywood back to the rear spar and with fabric over all. The fuselage is built up of a number of formers and four longerons the whole being covered with three-ply. The engine-mounting is attached to the fire-proof bulkhead by four bolts, and although the prototype is fitted with a Jupiter engine, any engine of similar size and power, such as the Armstrong-Siddeley Jaguar, the Wright Cyclone or the Pratt and Whitney Wasp can be installed.

The main petrol tank is carried in the fuselage and feed is by two A.M. pumps. The oil tank is carried in the fuselage behind the fire-proof bulkhead.

The two cockpits are fitted with dual control, those of the observer being removable.

Equipment includes wireless, heating apparatus, two parachutes, and oxygen apparatus and the armament consists of two fixed Vickers guns firing through the airscrew and two Lewis guns mounted on a revolving mounting over the observer's seat. As a light bomber it can be fitted with bomb rack and sighting and dropping gear and a fixed camera can be fitted in the back cockpit for reconnaissance work.

Ailerons are fitted to the bottom planes only and each aileron has an auxiliary Avro-type balance mounted above it. Lateral control is by direct push-and-pull rods and the tail controls are operated by double steel wires which are accessible through inspection doors in the after section of the fuselage.

The undercarriage consists of two Vees, the back legs of which are provided with rubber-in-compression shock-absorbers.

SPECIFICATION.

Span	10.8 m.
Length	8.75 m.
Height	3.05 m.
Wing area	31.45 sq. m.
Weight empty	950 kgs.
Weight of fuel	270 kgs.
Weight of crew and armament	430 kgs.
Total weight	1,650 kgs.
Wing loading	52.4 kgs./sq. m.
Power loading	4.1 kgs./h.p.
Speed, max.	240 km.p.h.
Speed, stalling	90 km.p.h.
Speed, landing	70 km.p.h.
Climb to 5,000 m.	20 mins.
Ceiling	7,000 m.
Range	2½ hours



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THE AVIA B.H.28.—A two-seat reconnaissance biplane fitted with a 385 h.p. Armstrong-Siddeley Jaguar engine.

A variant of this machine, known as the B.H.28, and fitted with a 385 h.p. Armstrong-Siddeley Jaguar engine has been built according to the requirements of the Roumanian Government as a reconnaissance machine.

In general arrangement and construction this machine is identical with the B.H.26.

SPECIFICATION.

Span	11.8 m.	Wing loading ...	52.2 kgs./sq m.
Length	9.05 m.	Power loading	5.3 kgs./h.p.
Height	3.45 m.	Speed, max.	225 km.p.h.
Wing area	36.5 sq. m.	Speed, stalling	90 km.p.h.
Weight empty	1,151 kgs.	Speed, landing	70 km.p.h.
Weight of fuel	360 kgs.	Climb to 5,000 m.	25 mins.
Weight of crew and armament	410 kgs.	Ceiling	6,000 m.
Weight loaded	1,920 kgs.	Range	3¼ hours.

THE AVIA B.H.33.

The B.H.33 is a high performance single-seater fighter fitted with a 450 h.p. Bristol Jupiter VI engine. In general arrangement and construction it is very similar to previous Avia single-seater fighters. It is of all wood construction. The planes are built up of two box-spars, ribs and stringers and are covered with three-ply back to the rear spar. The whole wing is then fabric covered. The top plane is in one piece and is of less span than the bottom. The top plane is attached to the fuselage by means of an inverted Vee steel tube cabane. There are two sets of N type interplane struts, one on either side of the fuselage.

The undercarriage consists of two wooden Vees and a cross axle, the latter being sprung by shock-absorber cord. The front legs of the Vee are braced in the lateral plane by a steel tube Vee, the apex of which is attached to the centre of the axle.

The tail unit is of the usual Avia type except that a fixed fin is used and the rudder has no balance.

The armament consists of two Vickers guns mounted in the cowl and firing through the airscrew.

SPECIFICATION.

Span	8.0 m.	Climb to 2,000 m. ...	2 min. 50 sec.
Wing area	22 sq. m.	" " 3,000 m. ...	4 min. 35 sec.
Weight empty	830 kgs.	" " 4,000 m. ...	6 min. 30 sec.
Load	400 kgs.	" " 5,000 m. ...	8 min. 50 sec.
Weight loaded	1,430 kgs.	" " 6,000 m. ...	12 min.
Speed, max.	266 km.p.h.	" " 7,000 m. ...	16 min.
Speed, stalling	78 km.p.h.	Ceiling	9,500-10,000 m.
		Range at full throttle ...	2 hours

This machine has been competing in a single-seater fighter competition, organised by the Roumanian Government, at Bucharest.

Other competitors were the Smolik S-20 (300 h.p. Hispano-Suiza engine), a Loire-Gourdou-Lesieur (450 h.p. Gnome-Rhone Jupiter engine) and a Fiat C.R.20 (400 h.p. Fiat A.20 engine).

The Avia B.H.33 put up a climb to 5,000 m. in 8½ mins. as compared with the next best climb of 16 mins. It also made a maximum speed of 265 km.p.h. as compared with the next best speed of 258 km.p.h.

AERO TOVARNA LETADEL.

The Aero Tovarna Letadel, of Vysocany, Prague, showed three aircraft on their stand. These were the Aero 11-H.S. (300 h.p. Hispano-Suiza engine), the Aero A-29 seaplane (240 h.p. Perun engine) and the A-30 (450 h.p. Lorraine-Dietrich engine).

THE AERO A.11-H.S.

The Aero A.11-H.S. is a modification of the Ab.11 two-seater reconnaissance biplane, which is standard equipment in the Czechoslovak Army Air Service. It is fitted with the 300 h.p. Hispano-Suiza engine in place of the 245 h.p. Maybach, and has been built in quantity for the Finnish Government.

The fuselage is a steel tube structure and is fairly deep throughout its length. The engine is mounted on wooden bearers and the engine feet rest on cork insets which reduce vibration to a minimum. A frontal radiator, fitted with shutters, is used and the whole engine unit is cowled with aluminium.

The wings are of wood and are covered with fabric. Ailerons are fitted to the top plane only and these are slightly smaller than those fitted to the Ab.11 and are steel-framed.

The tail unit consists of tail plane, elevators, fin and rudder. The rudder and elevators are balanced. The tail controls are cable, the rudder being by single and the elevators by double cable. The ailerons are controlled independently, so that in the event of the controls on one side being cut or damaged the remaining aileron will continue to function.

The petrol tanks, two in number, have a total capacity of 210 litres and are carried in the fuselage. The oil tank, holding 25 litres, is mounted on one of the fuselage bulkheads just behind the engine.

The machine is fitted with dual controls, those in the observer's cockpit being easily detachable.

Armament consists of one Vickers gun firing through the airscrew and one Lewis gun mounted on a revolving ring over the back cockpit. Accommodation for full photographic apparatus is also provided.



THE AVIA B.H.33.—A high-performance single-seater fighter fitted with a 450 h.p. Bristol Jupiter VI engine. This machine has put up a remarkable performance in the Roumanian single-seater fighter competition at Bucharest.



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THE LETOV S-20.—A single-seat fighter fitted with a 300 h.p. Skoda-built Hispano-Suiza engine.

On May 3, 1927, one of these machines, flown by Mr. J. Novak and carrying as passenger Mr. Husnik, one of the Aero Company's chief engineers, made, during a flight lasting 1 hour 4 min. 56 sec., 225 loops. The actual time taken to accomplish these loops was 44 min. 52.7 sec., that is, roughly 5 loops per minute. The greatest number of consecutive loops was 38, made in 7 min. 46 sec. Although this accomplishment savours of a stunt, it does prove that the machine is extremely manoeuvrable.

SPECIFICATION.

Span	12.78 m.	Power loading	5.05 kgs./h.p.
Length	13.12 m.	Speed, max.	218 km.p.h.
Height	3.1 m.	Climb to 1,000 m. ...	2 min. 30 sec.
Wing area	36.51 sq. m.	" " 2,000 m. ...	6 min. 52 sec.
Weight empty	989 kgs.	" " 3,000 m. ...	11 min. 30 sec.
Weight of fuel	226 kgs.	" " 4,000 m. ...	17 min. 50 sec.
Useful load	286 kgs.	" " 5,000 m. ...	27 min. 5 sec.
Weight loaded	1,144 kgs.	Ceiling	6,500 m.
Wing loading ...	41.5 kgs./sq. m.	Range	3½ hours

THE AERO A-29.

The Aero A-29 is a twin-float seaplane developed from the Ab-11 two-seater reconnaissance machine, and is fitted with a 240 h.p. Breitfeld-Danek Perun engine.

It is fitted with two long wooden floats, which are attached to the fuselage by a number of steel tubes in the form of an N, when viewed from the side, and an inverted W, when viewed from the front. It has a maximum speed of 195 km.p.h. at 5,000 m.

THE AERO A-30.

The Aero A-30 is a two-seater long-distance reconnaissance biplane fitted with a 280 h.p. Lorraine-Dietrich engine.

It is a development of the Ab-11 but is of larger dimensions all round. The fuselage is a steel tube structure and the engine mounting is quickly detachable, which latter feature permits the installation of any engine of similar size and h.p.

The wings, of unequal span and chord, are of wooden construction and are covered with fabric.

Armament consists of two Vickers guns firing through the airscrew and twin Lewis guns on a rotatable mounting over the back cockpit.

SPECIFICATION.

Span	14.8 m.	Weight loaded	2,300 kgs.
Length	9.0 m.	Wing loading	50 kgs./sq. m.
Wing area	46 sq. m.	Power loading	5.1 kgs./h.p.
Weight empty	1,200 kgs.	Speed, max.	220 km.p.h.
Useful load	1,000 kgs.	Range	6 hours

VOJENSKA TOVARNA NA LETADLA "LETOV."

The Vojenska Tovarna na Letadla, abbreviated to Letov, and otherwise the Military Aircraft Works of Letnany, Prague, showed three types of aircraft, the S-16 (450 h.p. Lorraine-Dietrich engine), the S-18 (60 h.p. Walter engine) and the S-20 (400 h.p. Hispano-Suiza engine), all designed by Mr. A. Smolik.

THE LETOV S-16.

The S-16 is a two-seater reconnaissance biplane of all-metal construction fitted with a 450 h.p. Lorraine-Dietrich engine. Incidentally, this machine, which was exhibited at the last Paris Salon d'Aviation, is the first all-metal machine constructed in Czechoslovakia.

The fuselage is of steel tube construction and the wings are of duralumin. The wing spars are built-up boxes of duralumin and the ribs are of trough section framework with corrugated distance pieces in the form of a Warren girder. All essential fittings are of steel.

The wings are of considerable span and of comparatively narrow chord and only one set of N type interplane struts are fitted on either side of the fuselage.

The undercarriage is of the split type, and consists of two Vees attached to the lower surface of the bottom planes and two bent axles, the inner ends of which are attached to the centre line of the bottom of the fuselage.

The points where the Vees are attached to the bottom planes are braced to the top longerons of the fuselage by two sets of N struts.

Armament consists of one Vickers gun firing through the airscrew and twin Lewis guns on a revolving mounting over the back cockpit. Equipment includes camera, wireless receiving and sending apparatus, etc.

SPECIFICATION.

Span	15.5 m.	Weight loaded	2,250 kgs.
Length	9.2 m.	Speed, max.	217 km.p.h.
Wing area	47 sq. m.	Climb to 3,000 m.	30 min.
Weight empty	1,200 kgs.	Ceiling	6,500 m.
Useful load	1,050 kgs.	Range	5½ hours

THE LETOV S-18.

The S-18 is a small two-seater training biplane fitted with a 60 h.p. Walter engine. This machine, together with the S-16, was exhibited at the last Paris Salon d'Aviation.

A number of machines of this type have been supplied to the Czechoslovak Army and also to the Bulgarian Government.

SPECIFICATION.

Span	10 m.	Wing loading	34 kgs./sq. m.
Length	6.97 m.	Power loading	10.3 kgs./h.p.
Height	2.64 m.	Speed, max.	134 km.p.h.
Wing area	18.64 sq. m.	Speed, min.	64-68 km.p.h.
Weight empty	418 kgs.	Speed, landing	36-41 km.p.h.
Useful load	200 kgs.	Ceiling	3,400 m.
Weight loaded	618 kgs.		

THE LETOV S-20.

The S-20 is a single-seater fighter fitted with a 300 h.p. Hispano-Suiza engine. The construction is of steel, duralumin and wood, and welding is only used in subordinate places.

The fuselage is of steel tubes rivetted together through steel fittings. It is covered with fabric with the exception of the engine cowling, which is of aluminium sheeting.

The wings, of high aspect ratio, are built up of wooden box-spars and plywood ribs and are covered with plywood back to the rear spar, the whole being finally fabric-covered. The ailerons are built up of a steel spar with duralumin framework and are covered with fabric.

The N interplane struts and undercarriage are of steel tubes. The tail unit is a duralumin framework, fabric-covered.

Equipment includes parachute, oxygen-breathing apparatus, electrical heating and lighting gear, etc.

Armament consists of two Vickers guns firing through the airscrew and 800 rounds of ammunition are carried.

The machine is characterised by its very well-streamlined and portly fuselage and its high aspect ratio wings.

This type of machine has been built in series for the Czechoslovak Army, the Lithuanian Army and this year a machine of this type is competing in the Roumanian Government single-seater fighter competition.

SPECIFICATION.

Span	9.6 m.	Wing loading	57 kgs./sq. m.
Length	7.44 m.	Power loading	3.46 kgs./h.p.
Height	2.36 m.	Speed, max.	257.5 km.p.h.
Wing area	18.4 sq. m.	Climb to 1,000 m. ...	1 min. 20 sec.
Weight empty	740 kgs.	" " 5,000 m. ...	13 min. 40 sec.
Military load	145 kgs.	Ceiling	7,250 m.
Weight loaded	1,050 kgs.	Range	2 hr. 10 min.

AN ABORTIVE ATTEMPT.

On June 14, Capt. Pelletier Doisy and M. Gonin left Le Bourget on an S.E.C.M.-Amiot 120 (650 h.p. Lorraine-Dietrich engine) in an attempt to beat the World's Record for a non-stop flight in a straight line.

Their decision to start, in spite of an unfavourable weather report, was expedited by the news that Flt. Lts. Carr and Mackworth were ready to start.

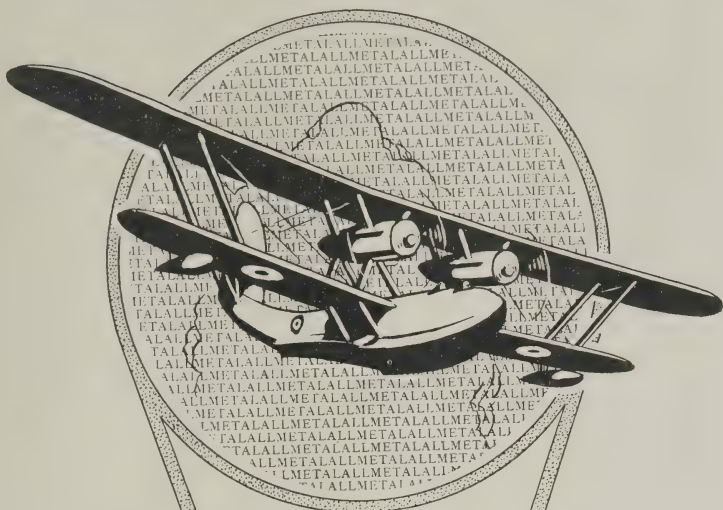
After taking off, Capt. Pelletier Doisy flew for some 2½ miles at a very low level, and owing to the stormy weather and the lack of climb in the overloaded machine, he decided to land at the first opportunity.

This was done in a cornfield at Gonesse, but after the machine had taxied a short distance a wheel collapsed. Both the occupants jumped out as the machine turned over. It caught fire and they were both slightly burned before they could get clear.

A second machine of the same type is being prepared for a further attempt.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE PERFORMANCE OF THE RYAN MONOPLANE.

[As sundry erroneous figures have been published concerning the trans-Atlantic flight of the "Spirit of St. Louis" owing to the calculator forgetting that American gallons differ from Imperial gallons, the following facts may be found useful.—ED.]

Ryan Air Lines, Inc., the constructors of Capt. Lindbergh's trans-Atlantic monoplane have sent to THE AEROPLANE a very complete set of curves and data sheets giving the aerodynamic characteristics of this extremely interesting machine. Certain of the data represents the designer's estimate of performance, but the flight is fairly conclusive evidence that these estimates are accurate.

A general specification giving the main dimensions, and so forth, of this machine was published in THE AEROPLANE on June 1, and therefore it is not necessary here to recapitulate these. The machine had a span of 46 ft. and a chord of 7 ft., and a total area of 319 sq. ft.

The wing section is the Clark "Y," a distinctly thick section, with a fairly high lift and an exceedingly good lift-to-drag ratio.

The weight of the complete machine empty is 2,750 lbs. The estimated load to be lifted for the purpose of crossing the Atlantic was: Pilot, 170 lbs., food and miscellaneous accessories, 40 lbs., fuel (425 U.S. gallons at 6.12 lbs./gallon), 2,600 lbs., oil (25 U.S. gallons at 7 lbs./gallon), 175 lbs. This makes a total load of 2,985 lbs., or a gross loaded weight of 5,735 lbs.

The gross weight at the end of the longest possible flight, that is with no fuel but with 10 gallons of oil, would be 2,415 lbs.

Fully loaded as above the wing loading is 16.1 lbs./sq. ft., and the power loading 23.0 lbs./h.p. taking the output of the Wright engine at 233 b.h.p. at 1,800 r.p.m. With the "end of flight" loading the figures become 7.57 lbs. per sq. ft. and 10.8 lbs. per h.p.

Under these conditions the estimated maximum speed was 120 m.p.h. fully loaded, and 124.5 m.p.h. empty, the minimum speed 71 m.p.h. loaded and 49 m.p.h. light.

The most economical speeds were estimated to be 97 m.p.h. at 1,670 r.p.m. fully loaded, falling to 67 m.p.h. empty, that is, of course, in a flat calm.

The corresponding fuel economy figures are 6.95 miles per U.S. gallon loaded, and 13.9 miles per U.S. gallon empty. As the U.S. or Winchester gallon is only .83 of the Imperial gallon, these figures correspond with 8.37 miles and 16.8 miles per Imperial gallon.

This would give a maximum range—assuming the most economical speed to be maintained throughout—of 4,110 miles in calm air. Allowing for the inevitable practical divergence from these ideal speeds, the range would become just over 4,000 miles.

Flight tests over a 3-km. measured course with 25 gallons of fuel, and five gallons of oil, showed a maximum speed of 129 m.p.h., or about 4 m.p.h. in excess of the estimate. Which would indicate that the probable speed at full load is in the neighbourhood of 124 m.p.h. These figures correspond to maximum engine r.p.m. of 1,950 and a maximum of 237 b.h.p. With full load and at a cruising speed of 95 m.p.h., about 1,660 r.p.m. were required.

A series of take-off tests were made at Camp Kearney, near San Diego, at gross weights ranging from 2,600 lbs. up to 4,200 lbs. in winds varying between 9 m.p.h. and zero. At 4,200 lbs. and no wind the take-off distance was 1,023 ft.

From the result of these tests the take-off distance with full load and a 7 m.p.h. wind should have been about 1,459 ft., or about 2,200 ft. with no wind.

Among the data provided are a set of curves showing speed against engine b.h.p. at full, half and no load. In the absence of data as to airspeed characteristics it is not possible to deduce accurately the resistance characteristics of the machine.

With the full load of 5,735 lbs. the minimum b.h.p. for level flight is 153 at about 85 m.p.h. Assuming that at this low speed the air-screw efficiency is as high as 70 per cent., the thrust would be about 470 lbs., which means a lift-to-drag ratio for the whole machine of 11 to 1. The maximum lift-to-drag ratio will be rather higher up the speed range, and its true value can scarcely be less than this approximate figure.

In the actual flight the load carried is reported to have differed from the estimated figures given above. The fuel taken off is reported to have been 451 U.S. gallons, or about 2,750 lbs., and the oil was reduced to 20 gallons as the result of the proved low oil consumption of this particular engine. Presumably therefore the load taken off from New York was about 115 lbs. greater than the estimated figure, or nearly 5,500 lbs.

From these particulars it will be obvious that the Ryan N.Y.P. monoplane is aerodynamically an exceedingly efficient machine, and possibly the figures which are now available concerning it may throw some light upon a question which is known to exercise the minds of some very able British designers—namely whether the monoplane has any aerodynamic advantages over the biplane.

THE FLIGHT ROUND THE ATLANTIC.

On June 16, Col. the Marchese de Pinedo alighted at Ostia from Barcelona, thus completing his flight round the Atlantic by way of the west coast of Africa, across the South Atlantic, over the centre of South America and the West Indies, across the United States to Canada and Newfoundland and across the North Atlantic to the Azores, Portugal, Spain and back to Italy.

He was received by Signor Mussolini at Ostia after having been met outside and escorted in by a fleet of Italian aeroplanes and being greeted by Lient. Freri, who jumped from an aeroplane in a Salvador parachute and alighted in the sea. Later he proceeded to Rome, accompanied by Signor Balbo, the Under-Secretary of State for Air, where the streets were decorated and illuminated in their honour.

This flight of 23,000 miles accomplished by the Marchese de Pinedo, Capt. del Prete and Signor Zanchetti on a Savoia 55 flying-boat, named the *Santa Maria*, fitted with two 550 h.p. Isotta-Fraschini engines, must rank as one of the finest long distance flights ever accomplished.

It began on Feb. 8 from Sardinia. After having flown across the South Atlantic to Buenos Aires and thence right across the swampy and practically inaccessible centre of South America to the United States, he had the misfortune to have his machine destroyed by fire in New Mexico by the carelessness of a bystander.

A second machine was sent out to New York and in May he continued his flight by making a very fast tour of North America by way of New York, Boston, Philadelphia, New Orleans, Chicago, and thence to Montreal, Quebec and Newfoundland.

On his flight across the North Atlantic he was forced to alight some 200 miles west of the Azores by fog and contrary winds. After his machine was towed into Horta and repaired, he resumed by flying out to the place of his forced landing and then continuing to Lisbon and thence to Barcelona and finally to Ostia and Rome.

On June 17, the British Ambassador in Rome, Sir Ronald Graham, in the name of His Majesty King George, asked the Premier to obtain from the King of Italy permission to confer on the Marchese de Pinedo the Air Force Cross.

In a letter to Signor Mussolini, Sir Ronald Graham writes—"It is with great pleasure that I transmit this proposal to give the glorious airman the highest decoration that can be conferred on a British airman."

THE KING'S CUP COURSE.

As the Royal Aero Club seems now to be in doubt about flying the King's Cup Race over that absurd course near Bournemouth, one suggests that co-operation with the "Approved" Flying Clubs might now be considered.

The course might very well be laid over a circuit from Stag Lane to Sherburn via Norwich, thence to Cramlington, back to Woodford, then to Castle Bromwich, out to Filton, in to Hamble, turn at Shoreham, and back to Stag Lane.

There would then be properly organised aerodromes all the way, with any number of willing workers to see that things are done properly. Since the Clubs became so active the whole problem of arranging turning points is quite different from that of three or four years ago.—C. G. G.

EASTWARD BY MOTH.

Mr. Dennis Rooke, who left Croydon on May 24 in an attempt to fly to Australia in a D.H. Moth (30/80 h.p. A.D.C. Cirrus II engine), arrived at Heliopolis, Cairo, on June 14. He flew from Basrah to Jask on June 19 and from Jask to Karachi on June 20.

He landed in semi-darkness at Karachi on the parade ground of the Royal Corps of Signals, having mistaken it for the Karachi aerodrome which is about eight miles away.

THE BRAZILIAN AIR SERVICE.

On Jan. 13, 1927, a law was passed and promulgated by the President of the Brazilian Republic, which officially made the Military Air Service a fifth arm of the Brazilian Army.

The Air Budget for the current year includes a sum of 3,660 contos de reis, for the purchase of new aircraft. Orders have been placed in France for a number of Morane-Saulnier school machines, and Breguet XIX and Potez XV's.

The Brazilian Government has also obtained the services of an important foreign mission, naturally French, under the command of Lieut.-Col. H. Jauneaud, who has been appointed Technical Adviser and Commanding Officer of the Military Aviation School. He will have five French officer-instructors.

While one regrets that France, and not Great Britain, has obtained such a strong footing in Brazil, one must compliment our neighbours on the success of their labours in a field which we, officially, have so consistently ignored.—L. B.

A PORT OF CALL.

Mr. Edward A. Jones, formerly of the well-known Kingwill and Jones joy-ride concern, has just re-opened his joy-ride season at Clacton-on-Sea. He wants Club pilots and private owners to know that if any of them happen to be visiting the salubrious seaside resorts of Clacton, Frinton or Walton-on-the-Naze, they are welcome to use his landing field.

The ground is close to the town and petrol and oil can be got close at hand. There is no shed accommodation, but there is a watchman on duty day and night. No charge will be made for parking.

That is certainly very generous of Mr. Jones, and no doubt aerial tourists will be glad to know that there is a place on the healthy East coast to which they can fly. One ventures to suggest that although there is no parking fee the ground staff or the night watchman may conceivably develop a thirst occasionally.

In writing to notify the foregoing facts, Mr. Jones points out that Mr. R. H. Miller, who was recently gazetted to the City of Edinburgh Auxiliary Squadron, was in fact passed out as a pilot by him at Turbushaw, Edinburgh.

One hopes that the Clacton landing ground will be well patronised. It is only about an hour's flight from Stag Lane, and less than that from Norwich. It is even reachable by a tourist from Sherburn who, although Skegness is so bracing, might prefer Clacton because it has a landing field.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE FLYING CLUBS.

The Royal Aero Club and the Associated Clubs.

The following Clubs are now associated with the Royal Aero Club:—The Hulton Aero Club, The Hampshire Aeroplane Club, The Lancashire Aero Club, The London Aeroplane Club, The Milland Aero Club, The Newcastle-upon-Tyne Aero Club, The Norfolk and Norwich Aero Club, The Suffolk Aeroplane Club, and The Yorkshire Aeroplane Club.

The London Aeroplane Club.

[Sec.: H. E. Perrin, 3, Clifford Street, London, W.]
Report for week ending June 19.

Flying time 10 hr. 55 mins. *Instructors*.—Messrs. F. G. M. Sparks and S. L. F. St. Barbe. *Instruction*.—A. J. Richardson, J. H. Veasey, L. Daniels, J. R. de Havilland, Miss Spooner, B. G. Luff, O. J. Marstrand, W. Biheller, Col. Winby, L. W. Gibbens, Lady D. Hamilton, P. W. Hoare, R. Malcolm, G. Black, G. E. Clair. *Solos*.—W. Hay. *Passenger*.—S. O. Bradshaw.

Two Club Moths are now in the works for annual reconditioning. The Bristol Brownie is expected back from Hamble this week.

The Lancashire Aero Club.

[Sec.: C. J. Wood, Windsor Bank, Chapel Street, Hyde, Cheshire.]
Report for week ending June 18.

Flying time 10 hr. 15 min. *Dual with Mr. Brown*.—Miss Baerlein 50 min., Messrs. Leeming 50 min., Hartley 45 min., Nelson 40 min., Keay and Harber 30 min. each, Schofield 25 min., Torres, Ruddy and Shiers 20 min. each, Stonex 15 min., Goodyear 10 min. *Solos*.—Messrs. Lacayo 45 min., 40 min., Nelson 20 min., Gattrell, Chapman and Hardy 10 min. each. *Joy-rides*.—With Mr. Cantrill—Messrs. Kenyon, Wareing, J. Kenyon and Allen. With Mr. Costa—Miss Shatwell. With Mr. Brown—Mr. Watson. With Mr. Scholes—Miss Ainsworth. With Mr. Lacayo—Mr. F. Scholes. *Tests*.—35 min.

It is over three months since the Club had such a low flying return to record. For once in a way the weather has little to do with it, and lack of enthusiasm certainly plays no part. Those inveterate boosters of flying hours, the Flying Sub-Committee, are primarily responsible, for they have decreed that no more flying shall be done by our Mark I Cirrus engines till such time as they have been fitted with the latest modified valve-segments.

One must admit that on the face of things their decision is a wise one. The country surrounding the aerodrome is not too good for forced landings and there is not one of our instructors who has not at one time or another had to "put in all he knew" to escape a crash through this same trouble. The climax was reached at the beginning of last week when, with an engine only recently sent back to us after complete overhaul, Mr. Brown was brought down with one valve-seating adrift and two more on the point of going. He got down safely with much credit to himself and the Moth.

One records the foregoing in extenuation of low flying hours, rather than in any spirit of criticism of the engine design, which has won enough laurels in any case to escape injury by criticism. One has a great admiration in many ways for the Cirrus Mark I and a considerable hankering after the Mark II, but our Club engines are among the earliest of their type and however much one may spend on fitting modifications and replacements they cannot be expected to go on for ever. The ground engineer has certainly done his damndest and no doubt the engines have done theirs. Meanwhile, "Thank Gawd for the Renault-Avro."

One may add that a strong feeling is growing up in the Club that we ought not to wait any longer for a decision from the Powers That Be [at the Air Ministry presumably.—C. G.] as to whether they wish us to continue flying or not. The aerodrome has all the makings of a fine natural golf course and now that the club-house is all poshed up it seems foolish to keep on with this flying business.

The Newcastle-upon-Tyne Aero Club.

[Sec.: A. H. Bell, Crumlington Aerodrome, Northumberland.]

Report for week ending June 5.

Flying time—36 hr. 10 min.—QV 17 hr. 25 min., LX 15 hr. 15 min., RK 2 hr. 10 min. *Dual with Mr. Parkinson*.—Mrs. Heslop, Miss Leathart, Dr. Watt, Messrs. Elmes, Thirlwell, Heaton, Jewett, Wilson, G. Shaw, Gibson, George, Macalpine, Downie, Pargeter, Bainbridge, and Capt. Milburn. *Solo*.—Capt. Milburn, Miss Leathart, Drs. Dixon and Watt, Messrs. Leech, R. N. Thompson, C. Thompson, Mathews, H. Ellis, Turnbull and W. B. Ellis.

Report for week ending June 12.

Flying time—44 hr. 20 min.—QV 23 hr. 10 min., LX 16 hr. 10 min., RK 3 hr. *Dual with Mr. Parkinson*.—Sir J. Reed, Craig, Elmes, Jewett, Thirlwell, Gibson, Heaton, Turnbull, Wilson, Phillips, H. Ellis, Davey, Miss Leathart and Mrs. Heslop. *Solo*.—Miss Leathart, Messrs. Turnbull, H. Ellis, R. N. Thompson, C. Thompson, Leech, W. B. Ellis, Phillips, Dixon, Todd and Mathews.

Report for week ending June 19.

Flying time—23 hr. 20 min.—QV 12 hr. 5 min., LX 10 hr. 50 min., PO 30 min. *Dual with Mr. Parkinson*.—Mrs. Heslop, Messrs. Rasmussen, Elmes, Jewett, Heaton, Turnbull, Wilson, Irving, W. Todd, Davey, Maxwell, Pargeter and Flg. Off. Dawson. *Solo*.—Flg. Off. Dawson, Dr. Dixon, H. Ellis, Turnbull, C. Thompson, R. N. Thompson, Mathews, W. B. Ellis.

On Tuesday Mr. Parkinson flew to Edinburgh returning with Sir Sefton Branker. After tea Sir Sefton Branker continued his journey to Sherburn in a Yorkshire Club Moth piloted by Mr. Fielden.

Friday saw LX off service, and gales prevented any flying on Saturday and Sunday.

The Secretary, Mr. Alec Bell, is still confined to his bed, but it is a pleasure to report that he is making slow but steady progress.

The Yorkshire Aeroplane Club.

[Sec.: T. M. Coles, Sherburn Aerodrome, Yorks.]

Report for week ending June 18.

Flying time 21 hr. 15 min. *Instruction with Mr. Beck*.—11 hr. 40 min. *Solo*.—3 hr. *Cross-country*.—6 hr. 5 min. *Tests*.—30 min. *Dual with Mr. Beck*.—Capt. Milburn, Miss Woodhead, Messrs. Brackenbury, Miller, Priestley, B. Dawson, Swift, Williams, Graticwick,

Bailey, Crouther, L. Dawson, R. Lax. *Solo*.—Messrs. Norway, L. Dawson, Henry Leatham, Mann, Fielden, Wood, M. Lax, R. Lax, Clapham.

This has been a poor week for mushrooms. In regard to our secondary activity, we haven't done much flying this week, either. Both the Avro and one Moth have been out of commission with internal disorders. Our sole remaining Moth was definitely out of sorts on Sunday morning, but recovered after a certain operation carried out with considerable skill by Mr. Broad on his way south on Sunday afternoon.

On Tuesday we had the pleasure of fetching Sir Sefton Branker from Newcastle and bringing him down to Leeds. On Wednesday we took him on to Brough and Howden, finally landing him on the Knavesmire at York.

On Saturday Mr. Clapham departed with a machine to Keighley, where he gave a display in aid of the local hospital.—D. M. N. C. The scheme for the provision of an up-to-date Club House for the Yorkshire Club at the Sherburn Aerodrome is proceeding well. The Fund was opened by the President, Colonel Sir Edward A. Brotherton, Bart., with a gift of £100. The following have also subscribed:—Mr. Robert Blackburn, £42; Mrs. R. Blackburn, £10 10s.; The Ragosine Oil Co. Ltd., £10 10s.; Mr. H. Hey, £10 10s.; Mr. W. L. Oldroyd, £10 10s.; Capt. Norman Blackburn, £5 5s.; Mr. Chamberlain, £5 5s.; Sir Sefton Branker, £10 10s.; the Hon. Lady Bailey, £1 1s.; Mr. D. D. Little, £2 2s.; Mr. J. F. Barnes, £2 2s.

The ambition of the members is that the Club House shall be the most up-to-date in Yorkshire. For the convenience of members desirous of making early morning starts on a long-distance flight, for those returning late, it is thought advisable to equip the Club with sleeping accommodation. It is further thought that members should be provided with some indoor recreation should they, owing to the weather, be prevented from flying. By way of out-of-door recreation the laying down of two tennis courts and a racquets court is thought to be ample.

Members will appreciate to what extent their Directors are studying their comfort, and they ask that all members will put their shoulders to the wheel and co-operate in every way possible so that the necessary money may be raised as early as possible.

Mr. D. D. Little, together with Mr. Hayes, are responsible for the Fund and a separate account has been opened with The National Provincial Bank Ltd., 2, Park Row, Leeds. Donations should be sent to and addressed as follows:—The Yorkshire Aeroplane Club Ltd. (Club House Fund), c/o National Provincial Bank Ltd., 2, Park Row, Leeds.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth, Birmingham.]

Report for week ending June 18.

Flying time 14 hr. 49 min. *Dual instruction*.—J. Edwards, Capt. J. E. Brewin, V. De Satge, J. C. Rowlands, E. P. Deane, R. D. Beddell, N. Crane, R. L. Brinton, R. I. Jackson. *Solos*.—W. Swann, E. J. Brighton, R. L. Jackson, C. Fellowes, G. V. Perry. *Passengers*.—A. B. Aston.

Very little flying was possible on Saturday owing to a gale. Congratulations to Mr. W. L. Handley on winning the Light-weight T.T. Race and Mr. H. J. Willis on coming in second in the Junior Race. Both are members of the Club.—W. M. P.

The Hampshire Aeroplane Club.

[Sec.: Major R. Ross-White, Hamble, Southampton.]

Report for week ending June 19.

Flying time—12 hr. 35 min. *Instruction*.—7 hr. 20 min. *Solos*.—4 hr. 30 min. *Joy-rides*.—10 min. *Tests*.—3 min.

Instruction.—L. Taylor 3 hr. 45 min., M. Hamilton Fletcher 30 mins., Commander A. W. Hunt 30 min., T. F. Brewster 25 min., W. M. Wall 25 min., W. D. Cox 20 min., B. Whittle 15 min., F. G. Moloney 15 min., V. F. Nicholson 15 min., R. H. Chaffey 15 min., A. L. Portage 15 min., and W. P. Courtney 10 min. *Solos*.—Don Juan de la Cierwa 2 hr. 10 min., E. I. C. Wyllie 1 hr., Capt. Yeatman 30 min., L. A. W. Deane 25 min., V. F. Nicholson 15 min., D. L. Rumble 5 min., and K. P. L. Bowen 5 min. *Joy-rides*.—Mr. Pulman with Mr. Thomson and Mr. Copland with Mr. E. I. C. Wyllie for 20 min.

Flg. Off. Overbury, R.A.F., will represent us at Bristol on Wednesday, the 22nd.

There is a lack of incident to report this week, but we rejoice in having enrolled a member of the Police Force, who intends to learn to fly. The writer is afraid to mention his name, in case this arm of the law should have any objection to seeing his name in print; he is a Full Scale Officer, and one has a wholesome fear of a blue uniform.

A SCARBOROUGH MEETING.

An Aerial Pageant is being held at Scarborough on July 9 under the auspices of the Yorkshire Aeroplane Club. Though it is under the Club's auspices it is all being run by the Scarborough authorities and by the people who own the "Spa," presumably to advertise the place rather than for the good of Aviation. Still, if the weather happens to be too rough for sea-going, a certain number of people may be lured to the aerodrome and become air-minded in consequence.

The Meeting will start at 15.00 hours, and continue until 18.15 hours. Sir Sefton Branker will address an audience from a platform on the Spa.

The afternoon's events will include a Fly Past of aircraft, evolutions by machines of the R.A.F., a parachute descent, stunting in formation, also by the Royal Air Force, crazy flying, an aerial combat between two R.A.F. machines, a balloon-bursting competition, and a "Pageant of Travel" relay race on the lines of the one at the Hamble Aerodrome.

An alleged attraction will be a landing by a private owner (male or female is not specified) in a bathing dress, to demonstrate that it is possible to fly to the seaside and bathe.—This is merely silly, and is of the nature of a stunt. Nobody is likely to fly in a bathing dress.

If the programme is carried through according to schedule it may do good. But it is difficult to understand why R.A.F. machines should be sent to amuse a seaside crowd at Scarborough and should have been refused permission to go to a great recruiting area like Newcastle-upon-Tyne.—C. G. G.



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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK

Trips per Day.—Monday, 20; Tuesday, 22; Wednesday, 22; Thursday, 24; Friday, 25; Saturday, 24; Sunday, 6.

IMPERIAL AIRWAYS LTD.:

Paris—London: London—Brussels—Cologne: Machines 60, passengers 680, freight 26 tons.

AIR UNION:

Paris—London: Machines 31, passengers 91, freight 16 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines, 22, passengers 117, freight 3 tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 15, passengers 74.

SABENA:

Brussels—London: Machines 12, passengers 52.

PRIVATE:

Machines 3, passengers 1.

Total number of trips by British Machines, 63, carrying 681 passengers. Foreign Machines, 80, carrying 334 passengers.

COMPARATIVE FIGURES.

Week ending June 19:

Machines, 143; Passengers, 1,015; Crews, 234; Total personnel, 1,249.

Corresponding week, 1926:

Machines, 140; Passengers, 794; Crews, 178; Total personnel, 972

Corresponding week, 1925:

Machines, 162; Passengers, 718; Crews, 206; Total personnel, 918.

Corresponding week, 1924:

Machines, 145; Passengers, 467; Crews, 179; Total personnel, 646.

Corresponding week, 1923:

Machines, 120; Passengers, 441; Crews, 194; Total personnel, 635.

Corresponding week, 1922:

Machines, 135; Passengers, 272; Crews, 193; Total personnel, 465.

Corresponding week, 1921:

Machines, 105; Passengers, 381; Crews, 122; Total personnel, 503.

Corresponding week, 1920:

Machines, 113; Passengers, 217; Crews, 122; Total personnel, 339.

Croydon Notes.

H.R.H. Prince George returned from Paris to London by air on Monday of this week. Mr. O. P. Jones was the pilot and the machine was a Handley Page W.10 (2 Napier). It was this same combination of machine and pilot which brought H.R.H. The Prince of Wales from Paris to London during the General Strike last year.

One feels that the Cairo—Basra service of Imperial Airways really deserves a few words of praise.

The organisation was all done at Croydon and the personnel were all drawn from Croydon. An entirely new type of machine was used. An engine new to air-line work was chosen. And the nearest base was 2,000 miles from C.H.Q. Yet in spite of this the service has completed its first six months of operation with 100 per cent. efficiency.

Such a record is unique in the history of Civil Aviation and very great credit is due to the Management of Imperial Airways Ltd. at home, the De Havilland and Bristol Companies for the preliminary work, the machines and the engines in the first place and to the management and pilots of Imperial Airways in the East for subsequent operations.

One can strongly recommend anybody feeling rich on a Friday afternoon to "blue" a couple of guineas and go for a tour of London by air in the Silver Wing service of Imperial Airways. One sampled the trip oneself last Friday. The machine was an Armstrong-Whitworth Argosy (3 Armstrong-Siddeley Jaguars) and the pilot was Mr. Horsey. There were 18 passengers and a steward.

We left the aerodrome at 16.10 hours and flying across Mitcham Common, Streatham and Brixton we made the river over Vauxhall Bridge. Here we bore slightly to the East and made a detour to the British Museum, which is a prominent landmark. Easily distinguishable were Regent Street, Trafalgar Square, St. James' Park, the Houses of Parliament, Hyde Park, Regent's Park, and the main Railway Termini. We returned via Stockwell, Brixton, Herne Hill, Dulwich, the Crystal Palace, Upper Norwood to Thornton Heath.

Incidentally one has always personally believed that this route is the quickest road route from the West-End to Croydon. It will certainly be the best way to the new buildings.

One would like to point out to Metal Propellers Ltd., Furley Way, that the name of their firm painted on their works is quite illegible from the air, though "Ceymal the Motor Upholstery" next door can be read easily from miles away.

During the flight tea was served by the steward to all the 18 passengers. It is rather curious drinking tea in the air especially if the air is bumpy. The saucer, the cup, and the tea in the cup all act entirely independently of one another and in a downward bump one has a distinct impression of the saucer being in one's hand with the cup a couple of inches above it and a blob of tea in air above the cup. All joined forces again later however without loss.

Mr. Neville Stack is still carrying on his service between Croydon and Ostende on an A.D.C. Aircraft D.H.9

Mr. Perry on Wednesday demonstrated a Nimbus-Martinsyde before an official party and also visited Stag Lane on a D.H.9.—G. D.

GOLD MINING AND AIR TRANSPORT.

The report of the Proceedings of the Thirty-First Ordinary General Meeting of the Shareholders of the Crown Mines Ltd. at Johannesburg is of unusual interest to aeronautical people because it is probably the first time in history that a gold mining company has considered air transport as a serious aid to its operations.

Mr. Samuel Evans, the Chairman, referred to the importance to the gold producers of South Africa of the near advent of facilities for the export of gold to other countries by air. He stated definitely that arrangements are being made for the establishment of a regular service for the transport of passengers and goods by aeroplane between Johannesburg and Durban and referred to the eventual possibilities of an airship service between Durban and England which, he said, would mean a saving of thirteen or fourteen days in the time now taken to get from Johannesburg to London.

He told the Meeting that in Europe air transport of gold for considerable distances had become almost universal not only because it was quicker but because it was cheaper and safer than surface transport, and he added that the insurance rates on goods between London and Paris were less than one-third of the rates by surface transport.

He said that if the gold mining companies of South Africa had been able to send their gold to England by air instead of surface transport, there would have been a saving of about £100,000 in the past year.

Further he said that when aviation had been developed in South Africa to the extent that it has in Australia it would probably have been found advantageous to transport gold from Rhodesia and the outlying districts of the Union to the Rand Refinery. About 30 tons of gold had been produced in these outlying districts in the year and when it was remembered that the transport of gold by air to the Rand would only take two-and-a-half hours from Pilgrim's Rest and not more than seven-and-a-half hours from the Shamva Mine in Rhodesia a well-organised air service would obviously be a boon to these scattered mines.

He believed the time was not far distant when the controllers of outlying gold mines would find it in their own interests to provide safe landing places for aircraft, and that, in a few years South African towns would probably consider aerodromes as essential as railway stations.

Finally he said that considering that South Africa was the largest producer in the World of the commodities which were most suitable for air transport it was surprising that South Africa was so far behind Australia and Canada.

When one considers that Crown Mines Ltd. pay a 60 per cent. dividend readers may take it that Mr. Samuel Evans is talking sound business common sense.

THE KHARTOUM—KENYA REVIVAL.

From a reliable source information has been received that the experimental flights on the Khartoum—Kenya air line will begin again early next month.

The De Havilland-Short-Jupiter *Pelican*, which was unfortunately wrecked by hitting some solid object in the Nile when getting off for its first flight at Khartoum, was brought down the river and shipped to the Greek Navy's Aircraft Factory at Athens, where it has now been completely rebuilt. At first sight it may seem curious that a British machine should be sent to Greece for rebuilding, but it must be remembered that the factory at Phaleron was organised and is run by the Blackburn Co. who are concerned with the *Pelican* through their interest in the North Sea Aerial and General Transport Co. Ltd., who are the financial backers of the Khartoum—Kenya air line.

On the principle that a slow beginner is a good finisher, the air line ought now to be free from further trouble, and one hopes soon to see it running a regular service.

AIR TAXIS LTD.

Mr. Hope last week flew without a stop from Pisa to London on his D.H.50. He had been to Rome on an air survey mission.

Mr. Dickenson flew to Cranwell and took some photographs of Flt. Lt. Carr's start on the Hawker Horsley.

CIVIL AVIATION IN CHINA.

A Reuter message from Hong Kong dated March 12 in the *Shanghai Sunday Times* of March 13 states:—

Speaking last night at the annual dinner of engineers and shipbuilders, the Governor said that air transport in China, save for the

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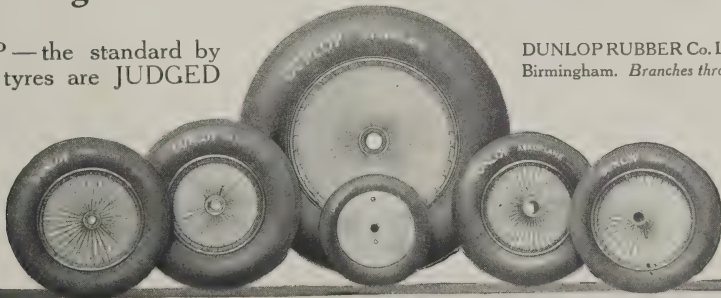
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C.F.H. 618

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

purposes of civil war, hardly yet existed, but was bound to come and "we are already at work on an aerodrome in this Colony." The idea of travelling from Hong Kong to Canton in an hour, His Excellency declared, was bound to make a strong appeal to business men and once airways were established a flight from Hong Kong to the majority of the great cities of China would only be a matter of one or, at the most, two days' journey.

TECALEMIT.

The rocker arms of the Whirlwind engine of Capt. Lindbergh's Ryan monoplane, *The Spirit of St. Louis*, and also the various greasable points of the machine itself, were all fitted with Tecalemit connections.

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NORTHERN AIRWAYS LTD.—Private company. Registered May 30. Capital, £750 in £1 shares (500 preferred ordinary and 250 ordinary). Objects: To carry on business as general and aeronautical engineers and manufacturers, to make experiments in and hold public exhibitions of aeroplanes, flying machines, aeronautics and aerial navigation; to establish aerodromes, etc. The first directors (to number not less than 2 nor more than 7) are: L. E. Parsons, 108, Victoria Street, S.W.1, insurance broker. W. T. Asher, 10, Ena Road, Pollards Hill, Norbury, company secretary. R. Taylor, address not stated. Qualification: £25. Remuneration: As fixed by the company. Secretary: W. T. Asher.

AIRSHIPS ELECTRIC ADVERTISING COMPANY LTD.—Private Co. Registered June 9. Capital, £350 in 350 shares of £1 each and 2,500 deferred shares of 1d. each. Objects: To deal in airships, aircraft, balloons and captive airships, and electric appliances; to act as advertising agents and contractors, etc. The first directors are: Capt. P. W. Leigh-Pemberton, Southmead, Newbury. Mrs. J. M. Ford, 21, Collingham Gardens, South Kensington, S.W.5. Qualification: 10 shares. Secretary: John Ford. Registered office: 24, Queen Victoria Street, E.C.4.

THE NORFOLK AND NORWICH AERO CLUB LTD.—Registered June 17. Capital, £100 in 1s. shares. Objects: To carry on the business indicated by the title. The minimum cash subscription is 25 shares. The first directors are:—A. A. Rice, Cringleford, Norwich. H. J. Caton, Ransworth Hall, Norwich. J. Hardy, Thickthorn Hall, Norwich. J. D. Paul, Brundall, Norfolk. G. N. Holmes, Rostherne, Lower Hellesdon, Norwich. L. L. King, Keewaten, Caister-on-Sea, Norfolk. R. O. Clark, 203, College Road, Norwich. W. A. Ramsey, Mian Mir, Cringleford, Norwich. N. B. Rudd, White House, Thorpe, Norwich. J. Morse, Easton Lodge, Norwich. Solicitors: R. F. Horner, 11, Upper King Street, Norwich.

PERSONAL NOTICES.

DEATHS.

BAGGS.—On June 16, at Stamford, as the result of a flying accident, Flt. Lt. Humphrey William Baggs, R.A.F.

Flt. Lt. Baggs was born in 1895 and educated at St. Paul's and Westminster. He joined the A.S.C. in 1914 and was granted a commission in the R.F.C. in 1917. In January, 1921, he was posted to No. 30 Sqn., Iraq, and in May, 1922, to No. 24 Sqn., Kenley.

He returned to Iraq in February, 1923, and was posted to No. 33 Sqn. at Mosul. He was promoted to the rank of Flt. Lt. in January, 1924, and posted to No. 4 F.T.S., Egypt, at the end of that year. He was restored to the Home Establishment in November, 1924, and appointed to the Staff of the C.F.S. in April last.

"BELL."—On June 16, at Stamford, as the result of a flying accident, Sydney Fleetwood Bell, Flg. Off. R.A.F.

Mr. Bell was born in 1900 at Lisburn, Co. Antrim, and educated at Campbell College, Belfast. He joined the R.A.F. with a S.S. comm. on July 8, 1924. After a course of flying instruction at No. 4 F.T.S., Egypt, he was posted to No. 20 (Army Co-operation) Sqn. He was appointed to the C.F.S. for a course of instruction last April.

MARRIAGES.

DUNVILLE-SHAW.—June 18, in London, Robert Lambert Dunville, eldest son of Wing Cdr. John D. Dunville, C.B.E., D.L., and Mrs. Dunville, Redburn, Holywood, Co. Down, to Mrs. Kathleen Kirkpatrick Shaw, daughter of Mr. Justice Morice (late of the High Court of Pretoria) and Mrs. Morice.

INGLIS-TURNER.—On June 18, at St. James's, Paddington, Flt. Lt. Francis F. Inglis, R.A.F., son of the late Alfred Inglis and Mrs. Inglis, of The Hollies, Bickley, to Vera Helen, daughter of Mr. and Mrs. Cecil W. Turner, of 49, Cleveland Square.

FORTHCOMING MARRIAGES.

MACKENZIE-RICHARDS-COBOLD.—The engagement is announced between Campbell, younger son of the late Peter Felix Mackenzie-Richards, M.I.C.E., and Mrs. Mackenzie-Richards, of Hill House, Great Yeldham, Essex, and Mirabel, only child of Lieut.-Col. Ernest Cazenove Cobbold, C.B., and Mrs. Cobbold, of West Hill, Aldeburgh, Suffolk.

STEVENSON-VIDLER.—The engagement is announced, and the marriage will shortly take place, between Flt. Lt. Robert Little Stevenson, M.B.E., R.A.F., second son of the late Lieut.-Col. John Stevenson, M.D., F.R.C.S., and Mrs. Stevenson, and Mary, daughter of Mr. and Mrs. George Paxton Vidler, of The Cottage, Bramshaw, New Forest.

BIRTHS.

BURTON.—On June 16, at a nursing home, Tonbridge, Kent, to Jessie Vivienne ("Tiny"), wife of Flt. Lt. Eric Burton, R.A.F.—a daughter.

PLENDERLEITH.—In London, to Dorothy, wife of Flt. Lt. W. N. Plenderleith, R.A.F.—a son.

TYRRELL.—On June 11, at 157, University Road, Belfast, to Barbara, wife of Flt. Lt. G. Y. Tyrrell, R.A.F.—a son.



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Edited by
C. G. Grey

Vol. XXXII. No. 26.

SIXPENCE WEEKLY.

[Registered at the G.P.O.
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"AND SEE ASCENDING SQUADRONS COME."—(SCOTT—Marmion)



THE BOMBERS:—No. 39 (Bombing) Squadron, R.A.F., rehearsing for the Formation flying by a Wing of Bombers which will be part of the programme of the R.A.F. Display on July 2.—("Aeroplane" photograph.)

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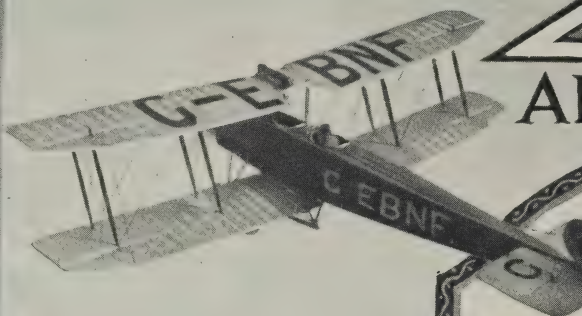
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ON THE AIR LEAGUE'S POSSIBILITIES.

There have been times when without being definitely rude to the Air League of the British Empire THE AEROPLANE has suggested that the aforesaid League would do more to make the British Empire air-minded if it could be persuaded to display a little more energy and initiative.

The Air League of the British Empire was founded away back in the dark ages of aviation in 1909, under the name of the Aerial League, and there seemed in those days every opportunity for it to become as important as the Navy League. All those who had to do with the founding of the League were quite of the best people. None of them could be suspected of being on the make or of having ulterior motives.

They were nearly all very senior officers (retired) of the Navy and Army. There was one Rear Admiral, and one Captain, R.N., and several Major-Generals.

Ever since then those responsible for the proceedings of the Air League have been of equally unimpeachable integrity. One uses the word "proceedings" advisedly instead of "activities" because the Air League has proceeded in a slow and dignified manner and not by leaps and bounds. But it has always been immensely respectable.

It has been slower even than the Royal Aeronautical Society. But it has been socially superior to the senior organisation as it has not been afflicted by pseudo-scientists of that curious type who are more familiar with the problematical x than with the conversational h .

Somehow or another the Air League has, one believes, acquired some 4,000 or 5,000 members. But it has hid its light under a bushel of such opacity that anybody would have considerable difficulty in discovering how it has acquired those thousands of members. In fact, the Air League

has been so respectable that it always reminds one of the story of the gentlewoman in reduced circumstances, who, being compelled to sell apples in the common market place for a living, cried "Apples, apples," in a subdued tone, adding under her voice "I do hope nobody will hear me!"

Of late years the Air League has only come into public notice as a kind of social appendix to the Royal Aeronautical Society, and the Royal Aero Club, and the Society of British Aircraft Constructors, when the four organisations in combination have offered public entertainment to aeronautical notabilities, the latest of such activities being the Banquet to Captain Lindbergh during his brief sojourn in the hands of the Modocks of this country. Presumably the Air League is brought in to give an air of tone to the proceedings.

Consequently there is some justification for saying that hitherto the Air League of the British Empire has failed to grasp its opportunities. Nevertheless, as, according to the Buddhist faith, all things work together for good, it may be that the Quietist doctrines of the Air League may turn out to have been all for the best. Probably energetic tub-thumping, or drum-beating, in the years between the Armistice and now would have been wasted.

WHAT THE AIR FORCE NEEDS.

There is no doubt that we do need an Air League to do for the Royal Air Force precisely what the Navy League did for the Royal Navy when it was fathered and financed by the late ever-to-be-lamented Robert Verburgh and activated by the very much alive Mr. Pat Hannon, erstwhile Irish agitator and now, with increasing years and wisdom, very Conservative M.P.

How many tens of thousands of enthusiastic members the



AUXILIARIES.—Group Capt. H.R.H. the Prince of Wales, K.G., in the uniform of the Welsh Guards, inspecting the Guard of Honour of No. 601 (County of London) Bombing Squadron, Auxiliary Air Force. Second in order behind H.R.H. is Sq. Ldr. the Lord Edward Grosvenor, O.C. the Squadron.

DON'T FORGET THE R.A.F. DISPLAY ON JULY 2.

Navy League had in those stirring-up days before the War 1914-18 one has no idea. But the Navy League was very much of a power in the land. It could even win Parliamentary elections and influence Cabinets by its ferocious advocacy of Naval defence.

Some of the more antique readers of THE AEROPLANE may remember a virulent election somewhere in South London when a craven Liberal Government proposed to imperil the existence of the British Empire by building only four or five or six battleships, of the type then known as *Dreadnoughts* and now used as scrap-iron, when the Admiralty demanded eight as the limit of safety.

The Navy League hurled itself into the fray with fine sea-going berserk fury, and the battle cry of "We want eight and we won't wait." And not only did it win the election but it terrorised the Government into placing with the Armament Ring orders for that quantity of ships.

Of course the Navy itself, as represented by the Admiralty, having no Press Section nor Publicity Department (*vide* official announcements) took no part in the activities of the Navy League, but the Navy League was very well seized of the Admiralty's internal policy. And there was, and perhaps still may be, the closest liaison between the chiefs of the Navy League and Their Lordships of the Admiralty, not to mention all the assorted Admirals and other senior officers who, though they could take no part in such campaigns themselves, were well able to support the Navy League with verbal ammunition.

THEN AND NOW

In those days, before the coming of aircraft, the Navy was truly our sure shield, and our island wall, and our first line of defence. To-day there are those who are even wicked enough to suggest that so far as mere defence is concerned, we could defend not only the British Isles but all the rest of the British Empire, and the sea-lanes leading thereto, by aircraft, which by reason of their speed and mobility could defend the sea-borne traffic on which our existence depends better and more cheaply than sea-going ships could do.

Such people point to the indisputable fact that during the War 1914-18 convoys of merchant ships in the Mediterranean under air escort were never even attacked by enemy submarines or surface ships, whereas convoys under the escort of surface ships alone never even got through the Mediterranean without loss.

Without going so far as to say that navies as we now know them are useless, the fact remains that the Royal Air Force was officially announced to be our First Line of Defence by Mr. Austen Chamberlain in the House of Commons on March 16, 1922, and that Mr. Baldwin said more recently that when the Channel was first crossed by air our Island story was told.

That being so, there is now obviously a need for an Air League, not merely a League to spread air-mindedness among our people in a genteel way but one which will be so dynamic as to become a real political force. It must be free from the control of any political party and powerful enough in itself to be able to influence the fate one way or the other at a general election of whichever political party supports or is opposed to the expansion of the Royal Air Force and the establishment of this nation as the greatest Air Power in the World.

For over a year various people have been endeavouring to stimulate the Air League into a state of activity which shall enable it to become such a force. All sorts of schemes have been discussed and suggested, and various men have been brought forward as persons likely to provide the necessary stimulus to the League's activities.

Opinions among those well disposed towards the League and willing to help its activities have been divided as to the type of man most desirable. Some have talked about the need for what in America is called a "live wire," which unfortunately generally means a cross between a tub-thumping politician and an advertising agent. Others have desired the strong silent man of fiction, who should drive others into activity by his supreme vital force.

Either would probably have been equally fatal.

The Reform Committee which was appointed to lay down the scheme for the necessary stimulation of the Air League dillyed and dallied over the job in a way which was worthy of the popular cartoonists' wholly erroneous notion of a Government department, but at last something definite has been done, almost for the first time in the history of the League.

THE SECRETARY-GENERAL.

Brigadier-General P. R. C. Groves, C.M.G., D.S.O., late R.F.C. and R.A.F., has been appointed Secretary-General to the League. And on him will depend the future of the Air League at any rate for the next couple of years.

One fixes that period because even if General Groves happens to be the Heaven-sent Apostle of air-mindedness he will need at least two years in which to get a move on the psycho-

logical momentum of the English people. And if he does not turn out to be all that his supporters believe him to be he must have at least two years to give him a fair chance of showing what he can do.

General Groves, who was then a Captain in The King's Shropshire Light Infantry, joined the R.F.C. in 1914. For a great part of the War he served on the staff of Major-General Geoffrey Salmond, G.O.C. R.A.F. Middle East, in Egypt and Palestine.

When the R.A.F. was formed General Groves was brought to the Air Ministry as Director of Flying Operations under Sir Frederick Sykes. And in 1919 he was appointed Air Ministry representative at the Peace Conference at Versailles. Still later he was British Air Adviser to the Supreme Council of Ambassadors, which post he held until 1922.

Since then General Groves has not been officially concerned with aviation either in a Service or civil capacity. But he has kept very closely in touch with aeronautical developments in this country and on the Continent, and he has spent quite a good deal of his time touring through foreign countries so as to inform himself on the spot of the developments of their commercial and Service aviation.

On various occasions since he retired from the Air Force and from the Army General Groves has expressed in print his opinions as to what we ought to do about British Air Power, civil as well as militant, and on occasion one has felt called upon to disagree from his opinions. Nevertheless, nobody who has met General Groves can question his honesty of purpose and his determination to do everything that within him lies to help in making the British Empire the leading Air Power of the World.

Therefore, as the Irish say, "More power to him."

THE INSIDE SECRETARIAL WORK.

One gathers that Mr. Douglas Gordon, who has laboured so long and so faithfully at the difficult task of keeping the Air League together and to prevent it from dying of inanition, will remain in the office of Secretary of the League. Whatever faults may have been found with the League itself, which faults have been due to the lack of energy and initiative of the Governing Council or whatever it calls itself, nobody has ever been able to complain of the work of the Secretary.

The dignity of the secretarial communications, and the meticulous care and courtesy with which all correspondence addressed to the League has been answered have been notable in these days of hustled history. So one hopes that Mr. Gordon may long continue to do the inside work of the League.

THE JOB IN HAND.

The task of General Groves will be to beat up enthusiasm in the League, primarily within the British Isles but so far as possible simultaneously all over the British Empire. Just as the Navy League has its branches in all the British Dominions so the Air League should have branches overseas, for the Air Defences of the Dominions are in a good many cases even more essential to their welfare than their sea defences.

There is the additional argument, which one has stated so often in this paper, that whereas no Dominion can possibly afford to buy or operate fighting ships powerful enough or numerous enough to protect itself against any considerable fleet, there is no Dominion so poor that it cannot afford an air fleet big enough to prevent any enemy sea-going fleet from coming within 100 miles of its coast.

Thus any of our Dominions can protect its coastwise seaborne traffic. This is one of the lessons which the Air League has to teach our brethren overseas.

One of the first things General Groves has done is to establish an office of the Air League just off the Strand where he will be within easy reach of the Air Ministry on one side and of the indigenous inhabitants of Fleet Street on the other. Thus he will have a wonderful opportunity of acting as a kind of political liaison officer between the Air Ministry and the Press. He already has the ear of the Press and one hopes that he may acquire the mouth of the Air Ministry.

Judging from the public writings of General Groves there is one friendly criticism which one would like to make as to his propagandist methods. That is, he has seemed to be a little too much inclined to try to make our flesh creep. The impression left at this date by those articles of his which one has read is that he has tried to horrify his readers with tales of the enormous superiority of other nations in air strength and with terrible tales of the possibilities of gas attacks by aircraft in the next war.

This is a species of propaganda in which one does not personally believe. The rôle of the Fat Boy in Pickwick, with his everlasting attempt to make people's flesh creep, has always been comic and not tragic. And the old legend of the evils of crying "Wolf, Wolf," is as true to-day as ever it was.

It is true that in order to put life into an Englishman you have to scare the life out of him. But then he has to be

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effectively scared. Merely telling him that he is inferior does not move him much, he knows it already.

But, there is no great difficulty about stirring an Englishman to enthusiasm. There is much virtue in the centuries-old rhyme about "Two skinny Frenchmen, one Portugnee, One jolly Englishman lick 'em all three." And one believes that the right attitude to adopt is to impress on the people of this country that we have the Best Air Force in the World, and the finest Aeroplanes-of-War, and the finest Air Staff and the finest Training System in the World—in spite of the fact that the politicians keep our Air Power short of money and spend it unnecessarily on other Services, civil and militant,—and that we jolly well intend to make our Air Force not only the Best in the World but the Biggest.

One sincerely hopes that under the guidance of General Groves the Air League of the British Empire will adopt that doctrine and will so stir up the brain of the ordinary Englishman that within a very few years the whole nation may regard itself as an air-faring nation just as in the past we have regarded ourselves primarily as a sea-faring nation.

That is to say, one looks upon the Air League as an organisation whose duty in life is to support the Air Council and the Air Staff loyally,—whether, according to personal ideas, the official policy be right or wrong,—against all politicians of all creeds who may speak or act against the Air Ministry. The Navy League has never been known to attack the Admiralty. That is half at least of the reason for its success. The Air League's attitude to the Air Council should show that Union which is Strength.

To that end one bespeaks for the Air League the whole-hearted support of all those who are directly interested in Aviation. The Air League being in essence a political organisation, officers of the R.A.F. who are still on the Active List cannot with propriety become members of the League, but there is every reason why their wives, and their "sisters and their cousins and their aunts" should become members, and active propagandists for a big Air Force. And everybody else who reads this paper should join.

The address of the Air League is 26, George Street, Hanover Square, and full information can be got there.

Anything that this paper can do to help the Air League and General Groves to give us a big and strong Air Force will be done with the heartiest good will.—C. G. G.

THE AIR LEAGUE OF INDIA.

The first public meeting of the Air League of India was held at Karachi on May 21. Sir Montagu de Pomeroy Webb, Kt., C.I.E., C.B.E., Chairman of the Air League of India, was in the Chair.

Opening the Meeting, Sir Montagu Webb described the development of Civil Aviation in India from 1918 to the present time. He said that the Air League of India was a distinctively Indian League rather than a branch of the Air League of the British Empire. Seven Committees of the League were now at work and one of them was engaged on the formation of a Light Aeroplane Club in Karachi.

Wing Cdr. R. J. Bone, C.B.E., D.S.O., Officer Commanding the R.A.F. Depot, Karachi, then delivered a lecture on "The Progress of Aviation."

He said that aviation was still in its infancy. He gave a brief outline of the developments which led up to the development of commercial aviation in 1919. He laid special stress on the safety and reliability of modern commercial aircraft and gave a number of figures and mileage on the various regular air routes all over the World.

Wing Cdr. Bone went on to describe the commercial uses of aircraft apart from passenger and mail carrying. He referred to the conveyance of bullion and precious stones and said that the insurance rates by air from Berlin and Amsterdam to London were only 2s. 6d. per £100 as compared with 6s. 8d. by boat. He then gave an outline of the Aerial Survey Work completed in recent years, the Forest Fire Protection work and the protection of cotton and other crops by spraying and dusting them from aeroplanes.

The Lecturer, who was received with enthusiasm, said that night flying was essential if commercial flying was to be a success.

The Chairman, referring to the Lecturer's statement that over twelve million miles had been flown on regular air lines in 1926 alone, pointed out that not a single mile of that great figure had been flown in India.

ITALY'S AIR MINISTER IN ENGLAND.

During the week British Aviation is to have the honour of a visit by General Italo Balbo, the Italian Under-Secretary for Air, whose splendid work for Italian Aviation is well known to readers of this paper.

To-day, Wednesday, June 29, he is due to arrive at Croydon on an R.22 Machine, which he is piloting himself. Tomorrow, Thursday, he will visit the R.A.F. Cadet College, Cranwell, and in the evening he will be the guest of General Guidoni, the Italian Air Attaché, at an official dinner.

On Friday, July 1, he will visit Halton and Northolt, and will lunch at the Italian Embassy.

On Saturday, July 2, he will be present at the R.A.F. Display, and on Monday, July 4, he will be entertained to lunch by the Air Ministry.

POOR OLD ATLANTIC.

Mr. Leslie Hamilton tells one that he is negotiating for a Fokker (three Armstrong-Siddeley Lynx) to make a non-stop flight across the Atlantic. He proposes to take off from Pendine Sands and to land at Ottawa.

Lt.-Col. Minchin and Mr. R. H. MacIntosh have obtained a Fokker F.VII (Bristol Jupiter) on which they will attempt to fly from London (Northolt) to New York. They hope to fly back again and will try to fly as far into Europe as they can. Their date of starting is the first week in August.

Mr. Frank Courtney was due on Tuesday at Calshot with the Dornier Wal (two Napiers) on which he hopes to fly to New York and back within the next few days.

STILL ANOTHER.

There is a rumour that Herr Kōnnecke, a pilot of the Deutsche Luft-Hansa, will attempt to fly from Berlin to New York and San Francisco by way of the Azores, and back, in July. He will be accompanied by a second pilot and two passengers, one of them an industrialist who is financing the trip, who will travel incognito.

NOW FOR THE PACIFIC!

Two attempts are to be made on a flight from San Francisco to Honolulu across the Pacific Ocean. One is a military venture by Lieuts. Lester J. Maitland and A. H. Hegenberger in a Fokker F.VII-3m (three 200 h.p. Wright Whirlwind engines) and the other is to be attempted by two civilians, Mr. E. H. Smith and Mr. C. H. Carter in a Travel Air monoplane (200 h.p. Wright Whirlwind engine).

Major-General Patrick, Chief of the Air Corps, is proceeding to San Francisco and it is rumoured that he intends to travel as passenger in the three-engined Fokker monoplane.

WHAT PRICE GLORY?

A comparatively wealthy Modock of Dallas, Tex., has offered a prize of \$25,000 for a flight from his home-town to Hong Kong with stops at San Francisco, Honolulu and Guam or Manila, to be completed in 144 consecutive hours at a date not later than Sept. 15, 1928.

Similarly, a Honolulu moneyman has offered \$35,000 for a non-stop flight from San Francisco to Honolulu. Sums of \$33,000 and \$3,500 have been subscribed by Spokane, Wash., financiers, for races from New York and San Francisco respectively to Spokane, and a Hollywood film-magnate has offered \$35,000 for the first man to fly from Los Angeles to Tokyo.

The U.S.A. is badly bitten with the long-distance flying bug, at any rate as a means by which moneymen may cover themselves with reflected glory. But the funny thing is that nobody seems to have heard the names of the good sportsmen of St. Louis, Mis., who put up the money for Charles Lindbergh's great flight.

TRANS-OCEANIC AVIATION.

"Beachcomber" of *The Daily Express*, whose joyful comments on current affairs appear every day in that paper, has summarised the Trans-Atlantic flying attempts in the following paragraph:—

YET ANOTHER RECORD?

I have just received a letter from Wilfred Ballast, the rising young aviator. He is busy putting the finishing touches to a novel machine of his own invention at Greater Waggling, Berks. "Lindbergh and Chamberlin have done well," he writes, "but I shall do better. I shall be the first red-headed man to cross the Atlantic by air backwards."

He points out also (not without justification) that by flying from west to east one loses four and a sixth minutes every 11.3 miles, but by flying with the sun one can make up six minutes odd every thirteen miles. By flying backwards from east to west, therefore, he hopes to be able to arrive before he started. A laudable effort.

[Which, after all, is very much the way the average person regards the matter, now that the big flights have been done. People are apt to forget that you can only do a thing for the first time once.—C. G. G.]

A GOOD ARGUMENT.

Those who want to introduce aviation to sceptical friends would do well to buy a copy of *The London Magazine* for July and mark for them the article on page 44 called "The Magic Carpet." This consists of extracts from the log of Mr. M. H. Volk in the Imperial Airways liner *Hercules IV* on her first voyage to Cairo. It is well illustrated by photographs taken by Mr. Volk himself.

It is a perfectly simple hour-to-hour diary of the trip without any embroidery at all. There is just enough comment to indicate that an air voyage is interesting, but otherwise it conveys the impression, which it is quite desirable to convey, that a voyage to Cairo by air is about as free from incident as a trip to Bristol in a train. In fact the aeroplane was more punctual in proportion to the distance than was the L.N.E.R. Fly. express which brought one back from Newcastle 45 minutes late in 270 miles.

DON'T FORGET THE R.A.F. DISPLAY ON JULY 2.



NEW EQUIPMENT.—Three new types for the R.A.F. Top to bottom: The Fairey III F (Napier Lion), the Armstrong-Whitworth Atlas (Armstrong-Siddeley Jaguar), and the De Havilland Hound (Napier Lion). These machines will be seen at the R.A.F. Display at Hendon next Saturday. All of them are tens of miles an hour faster than our fastest single-seat fighters, though they are designed General Purpose and Army Co-operation machines.

DON'T FORGET THE R.A.F. DISPLAY ON JULY 2.

THE ROYAL AIR FORCE.

The London Gazette.

June 21.

GENERAL DUTIES BRANCH.—The following Plt. Offs. are promoted to the rank of Flg. Off.:—J. Blackmore (Apr. 12); H. F. G. Southey (June 16); J. V. Young (June 16).

Plt. Off. on probation A. M. Butt is confirmed in rank (May 24); Wing Cdr. J. C. Quinell, D.F.C., is restored to full pay from half-pay (June 10); Flg. Off. H. W. R. Banting is transferred to the Reserve, Class A (June 22); Flg. Off. J. B. Townend relinquishes his S.S. comm. on account of ill-health (June 22); Flg. Off. J. R. Bowring, M.C. (Lt., R.A.), relinquishes his temp. comm. on return to Army duty (May 18) (substituted for the notification in the Gazette of May 17); Flg. Off. R. A. King (Lt., R.A.), relinquishes his temp. comm. on return to Army duty (June 19).

The S.S. comms. of the following Plt. Offs. on probation are terminated on cessation of duty:—P. A. Hawkesworth (June 15); L. L. K. Honeyball (June 9).

STORES BRANCH.—Flg. Off. M. F. Tomkins is granted a perm. comm. in this rank with effect from Oct. 1, 1926, on completion of probationary service; Plt. Off. C. P. Marshall is promoted to the rank of Flg. Off. (Mar. 10); Sq. Ldr. H. T. Foxen relinquishes his S.S. comm. on account of ill-health (June 17).

ACCOUNTANT BRANCH.—Flt. Lt. W. Rollinson is transferred to the Reserve, Class C (June 15).

RESERVE OF AIR FORCE OFFICERS.—GENERAL DUTIES BRANCH.—The following are granted comms. in Class A.A. as Plt. Offs. on probation:—E. F. Rhodes, D. P. C. Brecknell (June 8). The following Plt. Offs. are promoted to the rank of Flg. Off.:—H. W. Knott (May 10); H. A. Denny (May 24); A. F. Waghorn (May 30); R. A. Kendrick (June 7). The following Plt. Offs. on probation are confirmed in rank:—H. Bradley (June 7); H. N. Miller (June 21). Flg. Off. H. Preston is transferred from Class A to Class B (June 21). The comm. of Plt. Off. on probation S. J. Barlow is terminated on cessation of duty (May 20).

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—No. 600 CITY OF LONDON (BOMBING) SQUADRON.—The following to be Plt. Off.:—E. A. Burton (June 21). The following Flg. Off. to be Flt. Lt.:—C. G. Jenyns (May 30).

Appointments.

Week ending June 27.

GENERAL DUTIES BRANCH.—Squadron Leader F. G. D. Hards, D.S.C., D.F.C., to H.Q., Coastal Area, 1/7.

Flying Officers R. F. Overbury, to M.A.E.E., Felixstowe, 11/7. W. C. Yale, to No. 502 (Ulster) Sqn., Aldergrove, 21/6. V. S. Bazalgette, to No. 16 Sqn., Old Sarum, 21/6.

Pilot Officers E. T. M. Smalley, to No. 99 Sqn., Bircham Newton, 21/6. M. A. Cowan, to No. 503 Sqn., Waddington, 28/7. T. M. Abraham, N. W. K. Seeman and J. F. Griffiths, to No. 13 Sqn., Andover, 21/6. P. V. Anson, to Night Flying Flight, Biggin Hill, 21/6. G. M. Buxton, R. J. Carvell and J. W. Pease, to No. 4 Sqn., S. Farnborough, 21/6. H. H. Ellison, to No. 502 (Ulster) Sqn., Aldergrove, 21/6. B. G. Farrow, to No. 16 Sqn., Old Sarum, 21/6. L. S. Hill, to No. 4 Sqn., S. Farnborough, 28/7. K. E. Parker and A. A. Rumsey, to No. 9 Sqn., Manston, 21/6. J. R. Whitley, to No. 7 Sqn., Worthy Down, 21/6. C. C. D. Williams, to No. 16 Sqn., Old Sarum, 28/7.

The Royal Investitures.

The King held an Investiture at Buckingham Palace on June 21. Among those in attendance upon His Majesty was

Air Marshal Sir John Salmond, Principal Air Aide-de-Camp. Among those present was Group Capt. R. P. Ross, R.A.F., Aide-de-Camp in Waiting.

The following were among those introduced into the presence of the Sovereign, when the King invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:—

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE (Civil Division). Received the Honour of Knighthood, Knight Grand Cross.—Lt.-Col. the Rt. Hon. Sir Samuel Hoare, Bt., M.P.

Commander (Military Division).—Miss Joanna Cruickshank, Princess Mary's R.A.F. Nursing Service.

Officers (Military Division).—Sq. Ldr. William Cushion, R.A.F., Sq. Ldr. Arthur Harris, R.A.F., and Sq. Ldr. Arthur Williams, R.A.F. Members (Military Division).—Flg. Off. Allan Lanman, R.A.F., Flg. Off. Graham Smith, R.A.F., Flg. Off. Frank Whitmore, R.A.F., and S-M. William Webster, R.A.F.

THE MOST HONOURABLE ORDER OF THE BATH (Military Division). Received the Honour of Knighthood, Knight Commander.—Air Vice-Marshal Robert Brooke-Popham.

Companion (Military Division).—Group Capt. Charles Burnett.

His Majesty then conferred Decorations as follows:—

THE AIR FORCE CROSS.—Sq. Ldr. Harry Smart, R.A.F., Flt. Lt. Richard Crofton, R.A.F., Flt. Lt. Louis Hilton, R.A.F., Flt. Lt. Gerard Oddie, R.A.F., Flg. Off. Basil Embry, R.A.F., and Flg. Off. Thomas Stack, R.A.F. Reserve of Officers.

Fatal Accidents.

The Air Ministry regrets to announce that as the result of an accident at Dundee to a Fairey IIID machine of R.A.F. Training Base, Leuchars, on June 22, Rawdon Frank Gerald Salmond, Lt., R.N., Flg. Off., R.A.F., the pilot and sole occupant of the aircraft, was injured and died after admission to hospital.

The Air Ministry regrets to announce that as the result of an accident at Old Chaman, India, to a Bristol Fighter machine of No. 31 Squadron, on June 24, Flg. Off. Randal Earl Slacke, the pilot of the aircraft, and 349473 L-AC. Alfred Claudius Hart were killed.

The Auxiliary Air Force.

H.R.H. Group Capt. the Prince of Wales, K.G., opened the new Headquarters of No. 601 (County of London) Bombing Squadron Auxiliary Air Force at 54, Kensington Park Road, on June 21.

His Royal Highness was received at the entrance of the new H.Q. by Sq. Ldr. the Lord Edward Grosvenor, Officer Commanding the Squadron.

His Royal Highness inspected the Guard of Honour drawn up outside and then went over the building. The Officers of the Squadron were then presented to him.

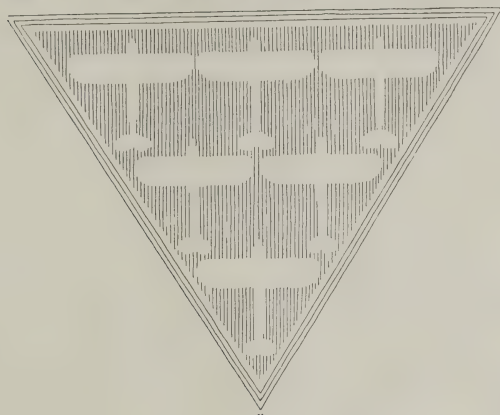
Among those present at the ceremony were:—Mr. R. Holland Martin (the chairman of the committee of London Territorial Army and Air Force Association), Sir Samuel Hoare, Marshal of the R.A.F. Sir Hugh M. Trenchard, Air Marshal Sir J. M. Salmond, Air Commodore J. G. Hearson, Air Commodore F. V. Holt, and Col. H. M. Pryce-Jones (secretary of the Association).



THE ATHLETIC CHAMPIONSHIPS.—The top picture shows AC. R. Thomas (Henlow) putting up a new R.A.F. Record for the Mile. The lower picture is the finish of the final of the 100 yards won by Sjt. F. C. J. Fry (Cranwell) 29. The second place was a dead heat between AC. Moffitt (Farnborough) 35, and Sjt. Taylor (Uxbridge) 23. The right-hand picture shows Sjt. Snaith (Digby) putting up a new R.A.F. Record for the 880 yards. Just behind him is L-AC. Liddle (Henlow).—("Aeroplane" photographs.)

DON'T FORGET THE R.A.F. DISPLAY ON JULY 2.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

An R.A.F. Escort for the "Renown."

A detachment of machines from No. 12 (Bombing) Squadron, Andover, which is commanded by Sq. Ldr. T. E. Salt, A.F.C., and equipped with Fairey Foxes (Curtiss D.12 engines) took part in the official reception of T.R.H. the Duke and Duchess of York at Portsmouth on their return from Australia on June 27. The machines flew in formation over the *Renown* as she came into the harbour.

The Service Team for the Schneider Trophy.

The following officers of the R.A.F. will constitute the British team to compete in the contest for the Schneider Trophy to be held at Venice on Sept. 25:—Sq. Ldr. L. H. Slatter, O.B.E., D.S.C., D.F.C., Flt. Lt. S. M. Kinkead, D.S.O., D.S.C., D.F.C., Flg. Off. S. N. Webster, A.F.C., Flg. Off. D. E. Worsley and Flg. Off. H. M. Schofield.

The Night Bombers' Reliability Trial.

The two-days' reliability trial for Night-Bombing Squadrons of the Wessex Bombing Area was held over a course from Eastchurch to Bircham Newton, Worthy Down, and back to Eastchurch. Marks were awarded for reliability, navigation, message transmission, and reception and general efficiency during the 48 hours' flight.

No. 7 Squadron (Vickers Virginias) were first with 763 points out of a possible 800. No. 9 Squadron (Vickers Virginias) was second with 749 points. No. 58 Squadron (Vickers Virginias), third, with 742 points, and No. 99 Squadron (Handley Page Hyderabad), fourth, with 739 points. All the machines had Napier Lion engines.

The R.A.F. Memorial Fund.

A Meeting of the Executive Committee of the R.A.F. Memorial Fund was held at the offices of the Fund on June 15 with Lord Hugh Cecil in the Chair.

The first business of the Meeting was a reference by the Chairman to the regretted death of the late Viscount Cowdray, who from the initiation of the Fund in the Autumn of 1919 had been senior Trustee of the Fund. A resolution of sympathy with Lady Cowdray was passed unanimously and was directed to be sent to Lady Cowdray accompanied by a suitable letter from the Chairman.

In the place of Lord Cowdray the Committee unanimously approved of the appointment as Trustee of the Right Hon. Lord Revelstoke, P.C., G.C.V.O., who had signified his willingness to act in that capacity.

The Secretary was able to inform the Committee that the sale of R.A.F. Songs and Verses had realised so far something just under £30 and more orders were expected.

The Committee had before them and approved of certain Posters which had been designed with the intention of being distributed to the Units of the R.A.F. at Home and Abroad with a view to spreading a knowledge of the Fund and what it has done in the matter of granting relief and help of various kinds during the past six years, and appealing for continued assistance from the R.A.F.

It was announced to the Meeting that the Scottish National War Memorial, Edinburgh, would be opened by H.R.H. the Prince of Wales, K.G., on the morning of July 14 next, and it will be remembered that the R.A.F. Memorial Fund contributed a sum of £1,200 towards the erection of an R.A.F. Bay as part of the above Memorial.

The Committee requested Air Vice-Marshal F. R. Scarlett, C.B., a Member of the Executive Committee and who is attending the ceremony in an official capacity as representing the R.A.F., to be good enough, at the same time, to represent the Executive Committee at the ceremony.

The Elliott Memorial Prize.

The Annual Prize of five guineas awarded by the Royal Aeronautical Society in memory of the late Mr. A. B. Elliott, for a paper written by an Aircraft Apprentice being trained at Halton, has been won for 1927 by 365150 AA. W. G. Buckler.

The subject of the Essay for 1927 was "The ideal mechanic, with special reference to the late Mr. A. B. Elliott."

R.A.F. SPORTS AND PASTIMES.

The R.A.F. Athletic Championships.

The R.A.F. Athletic Championships were held at the R.A.F. Sports Ground, Uxbridge, on June 22, 23 and 25. The ground and track at Uxbridge were in very good condition and experts consider that the track at any rate is better than the Stamford Bridge one.

Uxbridge won the King's Cup with 44 points, Henlow were second with 40 points and Halton third with 38 points. Cranwell, who have held the Cup for six years, were fourth with 28 points.

Cranwell's low place in the team scoring is no doubt due to the reduction in the establishment of the R.A.F. station at Cranwell since last year owing to the transfer of the Apprentices' Wing to Halton.

In the Junior Championships (for Stations with an establishment of under 500) Sealand were first with 34 points and won the Air Council Cup. Calshot were a good second with 31 points and Digby third with 29 points. Gosport scored 23 and Martlesham Heath 17.

The two Tug-of-War Championships produced well-trained teams and very keen finals. In the Junior final (88 stone) Calshot, who had beaten Farnborough and Northolt, beat Gosport, who had beaten Ruislip and Digby. In the Open final (110 stone) Halton, who had beaten Henlow and Flowerdown, beat Cranwell, who had beaten Manston and Uxbridge.

Three new Air Force records were put up in the Individual Championships and the times on the whole were very good. AC. R. Thomas (Henlow) won the Mile in 4 min. 27.4 sec., beating AC. Turner's record by 1.5th of a second.

Sjt. Snaith (Digby) won the 880 yards in 2 min. 0.45 sec., beating AC. Oxley's record by 1.25 seconds.

Flg. Off. G. A. Hadley (Coastal Area H.Q.), who also won the Long Jump with 21 ft. 4 in., won the 120 yards Hurdles in 16.15 sec., beating Sjt. Fretwell's record by 1.5th second.

On the other hand, the best high jump this year was 5 ft. 5 in. by AC. Bishop (Sealand), compared with Flg. Off. Nuttall's record of 6 ft. 0.3 in. However, AC. Bishop looked as if he could have jumped a good deal higher if he had gone on. (It is interesting to note that the Army High Jump this year stands at 5 ft. 6 in.)

With the exception of slight confusion in the commissariat department during the tea-interval (caused by the guests themselves who will use all their tickets on the final day), and immediately redeemed by the promptness and courtesy of the R.A.F. Central Band who gave up their seats to the guests, the organisation of the Sports was perfect.

The races started with R.A.F. precision and the results and times were announced directly after each event. The announcer, who in manner and tone would be a god-send to the B.B.C., added to the interest of those who could not read their programmes by a few helpful comments, and even managed by sheer lung-power to beat the band.

The results were:—

LONG JUMP:—Team, Open (1) Uxbridge (58 ft. 6.4 in.), (2) Andover Junior, Martlesham Heath (40 ft. 6.4 in.). Individual, (1) Flg. Off. G. A. Hadley (C.A.H.Q.), 21 ft. 4 in., (2) Cpl. Allen (Henlow), (3) AC. Barnes (Hendon).

HIGH JUMP:—Team, Open (1) Henlow, (2) Uxbridge. Junior, (1) Calshot, (2) Sealand. Individual, AC. Bishop (Sealand), 5 ft. 5 in., Cpl. Allen (Henlow) and AC. Coley (Calshot), 5 ft. 4 in.

360 YARDS HURDLE RELAY:—Team, Open (1) Halton, (2) Manston, (3) Henlow. Junior, (1) Digby, (2) Sealand. Individual 120 Yards Hurdle, (1) Flg. Off. Hadley (C.A.H.Q.) (16.15 sec.), (2) AC. Findley (Halton), (3) AC. B. Knight (Digby).



THE TEAM CHAMPIONSHIPS.—On the left is the Calshot Tug-of-War Team who won the Junior Team final by beating Gosport. On the right is the One Mile Junior Team Race showing the three runners who finished first as they were running in the second lap. The first three home were L.AC. Goodall (Northolt) 25, L-AC. Tym (Martlesham) 49, and AC. Johnson (Lee-on-Solent) 10. The Northolt Team won the race.—

("Aeroplane" photographs.)

DON'T FORGET THE R.A.F. DISPLAY ON JULY 2.

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440 YARDS RELAY:—Team, Open (1) Henlow (46 3-5 sec.), (2) Uxbridge, (3) Halton. Junior, (1) Sealand (47 2-5 sec.), (3) Duxford, (3) Farnborough. Individual 440 Yards, (1) Flg. Off. C. P. Vines (Farnborough (53 2-5 sec.), (2) Sjt. G. Lowdell (Digby), (3) AC. R. Morton (Uxbridge).

ONE MILE:—Team, Open (1) Uxbridge (4 min. 39 3-5 sec.), (2) Henlow, (3) Halton. Junior, (1) Northolt (4 min. 37 1-5 sec.), (2) Gosport, (3) Calshot. Individual One Mile, (1) AC. R. Thomas (Henlow) (4 min. 27 4-5 sec.), (2) L.-AC. W. Tym (Martlesham Heath), (3) AC. Johnson (Lee-on-Solent).

TWO MILES RELAY:—Team, Open (1) Uxbridge (8 min. 35 sec.), (2) Henlow, (3) Halton. Junior, (1) Gosport (8 min. 53 1-5 sec.), (2) Martlesham Heath, (3) Digby.

ONE MILE RELAY:—Open, (1) Uxbridge (4 min. 30 3-5 sec.), (2) Halton, (3) Henlow. Junior (1) Digby (3 min. 44 2-5 sec.), (2) Sealand, (3) Duxford.

100 YARDS:—Individual, (1) Sjt. F. C. J. Fry (Cranwell) (10 2-5 sec.), Dead-heat AC. Moffitt (Farnborough) and Sjt. R. Taylor (Uxbridge).

220 YARDS:—Individual, (1) L.-AC. Olney (Digby) (23 4-5 sec.), (2) Sjt. Fry (Cranwell), (3) Cpl. Pope (Manston).

880 YARDS:—Individual, (1) Sjt. Snaith (Digby) (2 min. 4-5 sec.), (2) L.-AC. Liddle (Henlow), (3) L.-AC. Hester (Uxbridge).

THREE MILES:—Individual, (1) AC. Turner (Uxbridge) (15 min. 7 sec.), (2) AC. Mulliner (Uxbridge), (3) L.-AC. Ferris (Uxbridge).

TWO MILES WALK (Non-Championship Event), (1) AC. Rollinson (Uxbridge) (15 min. 49 sec.), (2) AC. Chalmers (Uxbridge), (3) AC. Castle (Halton).

PUTTING THE SHOT:—Team, Open (1) Henlow (98 ft. 6½ in.), (2) Cranwell, (3) Halton. Junior, Digby (66 ft. 10½ in.), (2) Sealand, (3) Calshot. Individual, (1) S.-M. Wilson (Digby) (33 ft. 10½ in.), (2) Sjt. McKay (Digby), (3) S.-M. Parker (Halton).

TUG-OF-WAR:—Open (110 stone), Halton 2 pulls, Cranwell o. Junior (88 stone), Calshot 2 pulls, Gosport o.

At the finish of the Sports Lady Trenchard presented the Cups and Trophies and accepted a bouquet from Flt. Lt. J. C. Barraclough the Uxbridge Captain.—C. M. McA.

Manston Sports

The R.A.F., Manston, held their Annual Sports on June 16. The weather and the performances were above the average.

The Station was divided into four teams for the purposes of the inter-Unit Cup. This Cup was won by No. 1 Sub-Section (Carpenters) with 57 points, No. 9 (Bombing) Sqdn. were second with 49 points, No. 2 Sub-Section (Fitters) third with 44 points, and H.Q. Section fourth with 9 points.

The Victor Ludorum was A.C.2. Lawson, of No. 1 Sub-Section, who scored two firsts, one second, and two thirds, a total of 10 points.

The results were:—

220 yards.—(23 1-5 sec.) Cpl. Pape, (2nd) A.C.1. Hipwell, (3rd) A.C.2. Lawson. 880 yards.—(2 7½) A.C.2. Turner, A.C.2. Foreman, A.C.2. Ricks. 440 yards.—(56 2-5 sec.) Flt. Off. Dickens, A.C.2. Preece, A.C.2. Turner. 100 yards.—(10 2-5 sec.) Cpl. Pape, A.C.2. Blythe, A.C.2. Lawson. 3 miles.—(16-33) L.-AC. Loder, A.C.2. Turner, A.C.2. White. 1 mile (T. and I.).—(4-50 3-5) A.C.2. White, L.-AC. Loder, Cpl. Deverell.

Long Jump.—(40 ft.) L.-AC. Howse, A.C.2. Lawson, A.C.1. Moody. High Jump.—(5 ft. 2 in.) A.C.2. Lawson, Flt. Off. Dickens, Flt. Off. Downes. 120 yards Hurdles.—(16 4-5 sec.) A.C.2. Lawson, Flt. Off. Downes, L.-AC. Howse.

2 miles Walk.—(19-40) A.C.2. Payne, A.C.2. Ginn, A.C.2. Lever. 1 Mile Team.—No. 1 S.S., No. 2 S.S. No. 9 Sqdn. 440 yards Relay.—No. 2 S.S., No. 9 Sqdn., H.Q. Section. 360 yards Hurdles, Relay.—(57 2-5) No. 9 Sqdn., No. 1 S.S., No. 2 S.S. 1 mile Relay.—(3-52 4-5) No. 1 S.S., No. 9 Sqdn., No. 2 S.S. 2 miles Relay.—(7-46 sec.) No. 2 S.S., No. 1 S.S., No. 9 Sqdn.



'IRAQ SHOOTING.—The winners of the inter-Unit Eight Challenge Cup and Medals, 'Iraq Rifle and Pistol Association, No. 55 (Bombing) Squadron's Team. Standing, Cpl. Thomson, L.-AC. Saunders, L.-AC. Mounter, A.C.1. Kelly, L.-AC. Kelly. Sitting, Sjt. Gallie, Flg. Off. Maconachie, Flt. Lt. Smith, M.C., Sjt. Boyce, Cpl. Green. Gold Medals were also won by Flg. Off. Maconachie, Winner of the Officers' Match, and Sjt. Boyce, Winner of the Open Garrison Championship and the Serjeant's Mess Match.

Putting-the-Shot.—(35 ft.) Flg. Off. P. G. Chichester, A.C.1. Mitchell, A.C.2. Preece. Tug-of-War.—No. 2 Sub-Section Team.

Hail and Farewell.

Marshal of the Royal Air Force, Sir Hugh Trenchard, and the Committee of the Independent Force (R.A.F.) Dinner Club have decided to disband the old Dinner Club and give their fullest support to the R.A.F. Dinner Club.

The bombing of Germany and German industrial targets was conceived very early in the War 1914-18, but as aeroplanes and pilots at that time were not available and as the immediate requirements of the Army were so great the creation of an Independent Air Force for carrying the war into the enemy's country had to be postponed.

In April, 1918, the decision to form an Independent Force was reached. This force was to carry out a definite policy, the bombing of German munition industries. It came into being June 6, 1918, under the command of Major-General Sir Hugh Trenchard—now Marshal of the Royal Air Force. At the end of the war there were 10 Squadrons and approximately 600 officers in the Independent Air Force. Although this force had only been in existence 5 months a very strong feeling of comradeship and esprit de corps had manifested itself; so much so that it was decided to form a Dinner Club where once a year officers could renew their old acquaintances.

The first dinner was held in 1920, when 60 officers were present. Annual dinners have been held up to 1926. At the 1922 dinner 87 members appeared. It was evident to the Committee and to members generally that as time passed the numbers attending the annual dinner would diminish.

Although 50 officers attended the 1926 dinner the Committee this year, for various reasons, considered the question of the disbandment of the Club. Chiefly amongst these may be quoted:—

(1) The Royal Air Force Dinner Club, founded in 1923 by Wing Cdr. Christie and Sq. Ldr. Vivian Robeson, to provide an opportunity for past and serving officers of the R.A.F. to meet had now become a recognised institution.

(2) It was thought that many officers having served with more than one unit during the war would be unwilling to tie themselves down to attend one particular dinner and would be unable to attend all.

(3) The Independent Force Dinner Club being in a sound financial position, with an attendance of 10 per cent. of the original officers, this seemed a good time to go over to the R.A.F. general dinner.

Rightly or wrongly, therefore, it was agreed to disband the Independent Force (R.A.F.) Dinner Club and to support to the fullest possible extent the R.A.F. Dinner Club.

One may recall the fact that Group Capt. H.R.H. the Duke of York, who himself served with the Independent Force, was present as a member at one of the dinners. That distinguished French officer, General de Castelnau, who commanded the French Army in the area in which the Independent Force operated, was the guest of honour at another dinner. And various officers of high rank of the Army Troops which co-operated with the Independent Force have been at the dinners.

Following the Example.

The Secretary of No. 20 Squadron Re-Union Dinner has announced, with much regret, that owing to the lack of support the organisers of the Dinner have decided to cancel their dinner arranged for July 2. Former members of No. 20 Squadron have been encouraged to join the R.A.F. Dinner Club.

Cross-Word Puzzles.

Sq. Ldr. J. Wood of No. 4 F.T.S., Abu-Sueir, Egypt, has won the second prize (£1,500) in *The Daily Mail* Cross-Word and Ballot Competition in aid of the voluntary hospitals. Competitors had to solve 12 cross-word puzzles and forecast the order of popularity of sixteen features in a modern ideal house.

[Cross words and ideal homes seem incompatible, but of course people in the Service have unusual opportunities because of spending part of their lives in official straining and part in family bliss.—C. G. G.]

A FLIGHT ROUND AUSTRALIA.

On June 19, Mr. Kingsford Smith and Mr. Ulm left Sydney on a Bristol Tourer (240 h.p. Puma engine) in an attempt to fly round Australia in eleven days.

On June 24 they arrived at Broome, Western Australia, after having covered 860 miles in 9 hours 20 mins. non-stop.

On June 25 they reached Perth, W.A., after a flight through fog and rain which compelled them to fly below 50 feet to keep in view the telegraph line as their only means of navigation. In three days they covered 4,824 miles.

On June 26 they flew from Perth to Cook and on to Wirraminna, South Australia.

DON'T FORGET THE R.A.F. DISPLAY ON JULY 2.

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ROLLS-ROYCE AERO ENGINES in a Fairey seaplane flew across the **SOUTH ATLANTIC** in 1922.

ROLLS-ROYCE AERO ENGINES in a Fairey seaplane flew round **AUSTRALIA** in 1924.

A ROLLS-ROYCE AERO ENGINE in a Fokker monoplane flew from **HOLLAND** to the **EAST INDIES** in 1924.

A ROLLS-ROYCE AERO ENGINE in a Handley-Page aeroplane flew from **BRUSSELS** to the **BELGIAN CONGO** in 1925.

ROLLS-ROYCE AERO ENGINES in Dornier-Wal flying boats flew from **MOROCCO** to **SPANISH WEST AFRICA** in 1926.

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THE SQUADRONS AT THE R.A.F. DISPLAY.

With the exception of the three Army Co-operation Squadrons, all the squadrons taking part in the R.A.F. Display on July 2 at Hendon are included in the Air Defences of Great Britain, under Air Marshal Sir John Salmond, K.C.B., D.S.O. Seven of them are Bombing Squadrons, eight are Fighter Squadrons, and two are Squadrons of the Auxiliary Air Force.

No. 4 (*Army Co-operation*) Squadron, which will take part in a demonstration of communication with the ground is stationed at South Farnborough and is equipped with Bristol Fighters (Rolls-Royce Falcons). No. 4 Squadron was formed as a Unit of the R.F.C. at Farnborough in 1912 under Major G. H. Raleigh. It flew to France as part of the original Expeditionary Force in August, 1914. In 1916 the Squadron formed part of the 4th Army and was equipped with B.E.2cs. It was reduced to a cadre in February, 1919, and re-formed in April, 1920. It is now commanded by Sq. Ldr. J. C. Slessor, M.C.

No. 7 (*Bombing*) Squadron, which has won the endurance trials for night-bombing Squadrons, is stationed at Bircham Newton, Norfolk, and is equipped with Vickers Virginias (Napier Lions). No. 7 Squadron was originally formed as a Unit of the R.F.C. in September, 1914, and joined the British Expeditionary Force in France in April, 1915, when it was equipped with B.E.2cs and attached to II Brigade. The Squadron was disbanded on the last day of 1919 and re-formed on June 1, 1923. It is now commanded by Wing Cdr. F. A. Portal, D.S.O., M.C.

No. 9 (*Bombing*) Squadron, which was second in the endurance trial for night-bombing Squadrons, is stationed at Manston in Kent, and is also equipped with Vickers Virginias (Napier Lions). No. 9 Squadron was formed in September, 1914, as a H.Q. Wireless Unit, R.F.C., and was disbanded and re-formed in April, 1915, as a Unit of the R.N.A.S. and attached to the 4th Army, and equipped with B.E.2cs. The Squadron is now commanded by Wing Cdr. C. C. Durston.

No. 12 (*Bombing*) Squadron, which will take part in the Wing Formation Flying and Bombing-the-Barbarian-Town, is stationed at Andover, and equipped with Fairey Fox (Curtiss D.12s) day-bombing machines. No. 12 Squadron was formed in February, 1915, and in 1916 was serving as a Unit of III Brigade equipped with B.E.2cs. On Sept. 5, 1916 (during the Battle of the Somme), No. 12 Squadron, R.F.C., dropped 38 bombs on Bapaume Station and severely damaged the station, line, and some trains. The Squadron was disbanded on July 27, 1922, and re-formed on April 1, 1923. It is now commanded by Sq. Ldr. T. E. Salt, A.F.C.

No. 13 (*Army Co-operation*) Squadron, which will take part in a demonstration of communication with the ground is stationed at Andover, Hampshire, and is equipped with Bristol Fighters (Rolls-Royce Falcons). No. 13 Squadron, R.F.C., was formed in February, 1915, at Gosport, and in 1916 became part of III Brigade at Chateau de Sains. The Squadron was disbanded in December, 1919, and re-formed as a Signal Co-operation Flight at Kenley. In April, 1924, it became an Army Co-operation Squadron. It is now commanded by Sq. Ldr. H. I. Hamner, D.F.C.

No. 16 (*Army Co-operation*) Squadron, which will take part in a demonstration of communication with the ground, is stationed at Old Sarum, near Salisbury, and equipped with Bristol Fighters (Rolls-Royce Falcons). No. 16 Squadron was formed at St. Omer, in France, on Feb. 10, 1915, the first Squadron of the R.F.C. to be formed in the field. In 1916 it was equipped with B.E.2cs and attached to I Brigade at Chateau du Reveillon as part of the 1st Wing. The Squadron was disbanded at the end of 1919 and re-formed as the Co-operation Squadron of the School of Army Co-operation at Old Sarum. It became No. 16 Squadron in April, 1924. The Squadron is now commanded by Sq. Ldr. W. A. Coryton, M.V.O., D.F.C.

No. 19 (*Fighter*) Squadron, which will take part in the "Air Battle for London" and the fight with the Kite-Balloon, is stationed at Duxford, Cambridgeshire, and equipped with Gloster Grebes (Armstrong-Siddeley Jaguars). The distinguishing marking of this Unit is black crosses on a silver ground. No. 19 Squadron was formed in September, 1915, and in 1917 was a Unit of G.H.Q. Wing (9th Wing) at Fienvillers, and engaged in special duties and general reconnaissance work. The Squadron was disbanded on the last day of 1919, and re-formed on Apr. 1, 1923. It is now commanded by Sq. Ldr. H. W. G. Jones, M.C.

No. 23 (*Fighter*) Squadron, which will take part in the Altitude Race, is stationed at Kenley in Surrey, and equipped with Gloster Gamecocks (Bristol Jupiters). The Squadron marking is red and blue squares. No. 23 Squadron was formed in September, 1915, and in 1916 was a Unit of the 13th Army and equipped with F.E.2bs and mainly engaged in long-distance bombing. In 1917 it was transferred to Albert

as part of V Brigade. It was disbanded at the end of 1919 and re-formed in July, 1925. The Squadron is now commanded by Sq. Ldr. R. Collishaw, D.S.O., O.B.E., D.S.C., D.F.C.

No. 25 (*Fighter*) Squadron, which will take part in the low-bombing of the Tank, is stationed at Hawkinge in Kent, and equipped with Gloster Grebes (Armstrong-Siddeley Jaguars). The Squadron marking is a white line on a broad black bar. No. 25 Squadron was formed in September, 1915, and in 1916 was attached to H.Q., R.F.C., and equipped with F.E.2bs. In June, 1916, a pilot of this Squadron fought and killed in air combat Lt. Max Immelmann, the renowned German pilot. This Squadron also did valuable work during the Battle of the Somme in 1916, in destroying German lines of communication. No. 25 Squadron was disbanded in January, 1920, and re-formed in April, 1920. It is now commanded by Sq. Ldr. E. D. Atkinson, D.F.C., A.F.C.

No. 29 (*Fighter*) Squadron, which will attack the Hydrabads in the "Battle-for-London," is stationed at Duxford in Cambridgeshire, and equipped with Gloster Grebes (Armstrong-Siddeley Jaguars). The Squadron marking is a double row of blue and white chequers. No. 29 Squadron was formed in November, 1915, and in 1916 was a Unit of the 11th (Army) Wing and equipped with D.H.2s. The following year it became part of III Brigade at Chateau de Sains. It was disbanded in December, 1919, and re-formed in April, 1923. It is now commanded by Sq. Ldr. R. H. G. Neville, M.C.

No. 32 (*Fighter*) Squadron, which will take part in the Altitude Race, is stationed at Kenley, Surrey, and equipped with Gloster Gamecocks (Bristol Jupiters). The Squadron marking is white diagonal bars on a blue ground. No. 32 Squadron was formed in January, 1916, as a Unit of the R.N.A.S. In 1917 it was attached to V Brigade at Albert. It was disbanded at the end of 1919 and re-formed in April, 1923. The Squadron is now commanded by Sq. Ldr. R. B. Mansell, O.B.E.

No. 39 (*Bombing*) Squadron, which will take part in the Wing Formation Flying, is stationed at Spittlegate, Lincolnshire, and is equipped with D.H.9as (Libertys). It is shortly to be re-equipped with Fairey IIIFs. No. 39 Squadron was formed on May 1, 1916, as a Home Defence Squadron, and was stationed at Sutton's Farm, and had H.Q. at Hounslow. Later in the year it was moved to Woodford. It was equipped with B.E.2cs, and was the beginning of the systematic training of night pilots and the standardisation of night-flying equipment, armament, etc. The Squadron was disbanded five days after the Armistice, and re-formed in July, 1919. It is now commanded by Sq. Ldr. H. V. Champion de Crespigny, M.C., D.F.C.

No. 41 (*Fighter*) Squadron, which will give the display of Musical formation flying, is stationed at Northolt, Middlesex, and equipped with Siskins (Armstrong-Siddeley Jaguars). The Squadron marking is a red bar on a silver ground. No. 41 Squadron was formed in July, 1916, and in 1917 was part of the 11th Wing, R.F.C., attached to II Brigade at Cassel. It was disbanded in December, 1919, and re-formed in April, 1923. It is now commanded by Sq. Ldr. F. Sowrey, D.S.O., M.C., A.F.C.

No. 56 (*Fighter*) Squadron, which will take part in the Altitude Race, is stationed at Biggin Hill, Kent, and equipped with Gloster Grebes (Armstrong-Siddeley Jaguars). The Squadron marking is a double row of red and white chequers. No. 56 Squadron was formed in June, 1916, and in 1917 was engaged in contact patrol on the Western Front. Capt. Albert Ball, V.C., who was officially credited with destroying 43 enemy aeroplanes, was in this Squadron. In the summer of 1917 No. 56 was one of the Squadrons which particularly distinguished themselves along the front of the 5th Army. Capt. J. B. McCudden, V.C., and Lt. Rhys-Davids were also in this Squadron, which arrived in France in April, 1917, and by the end of September had shot down 200 enemy machines. This Squadron continued its distinguished career until it was disbanded in January, 1920. In February, 1920, No. 80 Squadron became No. 56 in Egypt, and it was again disbanded in September, 1922, but was re-formed at Hawkinge in November, 1922. It is now commanded by Sq. Ldr. C. H. Elliott-Smith, A.F.C.

No. 58 (*Bombing*) Squadron, which will take part in the Bombing-of-the-Barbarian-Town and was third in the Endurance Trial for Night-Bombing Squadrons, is stationed at Worthy Down, Hampshire, and equipped with Vickers Virginias (Napier Lions). No. 58 Squadron was formed in June, 1916. In February, 1920, it became No. 70 Squadron and in April, 1924, it was re-formed as a Bombing Squadron under its original designation. It is now commanded by Sq. Ldr. A. T. Harris, O.B.E., A.F.C.

No. 99 (*Bombing*) Squadron, which will take part in the Battle-for-London and was fourth in the Endurance Trial for Night-Bombing Squadrons, is stationed at Bircham



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Newton, Norfolk, and equipped with Handley Page Hyderabad (Napier Lions). No. 99 Squadron was formed in August, 1917, and joined VIII Brigade in France in May, 1918, equipped with D.H.9s (200 h.p. B.H.P. engines). In June, 1918, it became part of the newly-constituted Independent Air Force. With the other Squadrons of the I.A.F. No. 99 carried out long-range bombing attacks and suffered very heavy casualties. In the course of a raid on Thionville and Metz by seven machines of the Squadron only one man of the 14 returned alive. No. 99 Squadron was absorbed into 27 Squadron in February, 1920, but re-formed in April, 1924. It is now commanded by Wing Cdr. W. J. Ryan, C.B.E.

No. 111 (Fighter) Squadron, which will take part in the Altitude Race, is stationed at Duxford, and equipped with Siskins (Armstrong-Siddeley Jaguars). The Squadron marking is a black bar on a silver ground. No. 111 Squadron was formed in June, 1917, and joined the 5th Wing operating in Egypt and Palestine, equipped with Nieuport Scouts. In February, 1920, it became No. 14 Squadron, but was re-formed in October, 1923. It is now commanded by Sq. Ldr. G. W. Roberts, M.C.

No. 207 (Bombing) Squadron, which will take part in the Wing formation flying, is stationed at Eastchurch, Isle of Sheppey, and is equipped with D.H.9as (Liberty). It was originally formed in November, 1916, as No. 7 Squadron, R.N.A.S., and became No. 207 Squadron, R.A.F., in April, 1918. It was disbanded in January, 1920, and re-formed ten days later. It is now commanded by Sq. Ldr. J. B. Graham, M.C., A.F.C.

The Auxiliary Air Force Squadrons. Two Squadrons of the Auxiliary Air Force will take part in the Display for the first time. These Squadrons will be among the Units in the Bombing-of-the-Barbarian-Town episode. No. 600 (City of London) Squadron is stationed at Hendon and commanded by Sq. Ldr. the Rt. Hon. F. E. Guest, P.C., C.B.E., D.S.O., M.P. No. 601 (County of London) Squadron is also stationed at Hendon and is commanded by Sq. Ldr. the Lord Edward Grosvenor. This Squadron won the Esher Cup for efficiency in the Auxiliary Air Force. The Auxiliary Air Force was formed in 1925 and has no previous history.—C. M. MCA.

AIR AFFAIRS IN PARLIAMENT.

THE R.A.F. IN CHINA.

In the House of Commons on June 20, in reply to a question by MR. TREVELYAN, MR. LOCKER-LAMPSON (UNDER-SECRETARY OF STATE FOR FOREIGN AFFAIRS) said that he had seen reports in the Press that the member of the Nanking Administration who was in charge of foreign affairs had made a protest against British military aircraft flying over Chinese territory without authorisation and that Chinese troops had been instructed to fire on British aircraft, but he had no official information on the subject. It was not proposed to modify the instructions that had been given to the Naval Commander-in-Chief.

SERVICE LONG-DISTANCE FLIGHTS.

In the House of Commons on June 20, in reply to a question by LT.-CDR. KENWORTHY, the SECRETARY OF STATE FOR AIR said that no information had been made public about the return of FLt. Lts. Carr and Gillman of the R.A.F. to London after their flight of 3,425 miles, but he added that steps had been taken to convey to these officers immediately on their arrival in London his congratulations on a flight which although it did not succeed in establishing a record, could certainly be numbered among the great achievements of British aviation. If a successful flight were made in the future, as he hoped would be the case, he would certainly consider how best to reconcile the desire of the Service to treat these and similar flights as undertaken in the course of duty with the desire of the public to show their appreciation of a fine achievement. LT.-CDR. KENWORTHY thought there should not be any question of allowing the public to demonstrate their congratulations in the event of the flight being successful. SIR SAMUEL HOARE said he could not prevent the public making any demonstration they desired, but he had to consider the point of view of the Service, the officers of which regarded these flights as duty flights, and the feeling among the officers of the R.A.F. was against publicity. LT.-CDR. KENWORTHY said that he appreciated that point of view, but that he considered that it was of great assistance to British prestige that the World should know of these great flights. [Which is not quite the same thing as submitting serving officers to a demonstration of mob hysteria.—C. M. MCA.]

In reply to a question by CAPT. GUNSTON, the SECRETARY OF STATE FOR AIR said that as far as he could see it would not be possible to make another attempt before the early Autumn owing to the monsoon having broken in the North of India. He thought it would be better to wait for a time when no unnecessary risks would be run.

AIRCRAFT AND CATAPULTS IN CRUISERS.

In the House of Commons on June 17, in reply to a question by CDR. BELLARS, LT.-COL. HEADLAM, for the FIRST LORD OF THE ADMIRALTY, said that the maximum number of aircraft and catapults carried by any one cruiser built was:—Great Britain, 3 aircraft, 1 catapult; U.S.A., 3 aircraft, 2 catapults; Japan, 3 aircraft, 1 catapult; France, 1 aircraft, 1 catapult; Italy, nil.

PROFESSIONAL JEALOUSY?

In the House of Commons on June 22, in reply to a question by COL. DAY, the UNDER-SECRETARY OF STATE FOR AIR said that H.M. King Feisal of Iraq travelled from Basrah to Baghdad on May 21 in one of Imperial Airways machines. He was escorted for the first fifteen minutes of the journey by seven R.A.F. machines, after which they proceeded on other Service duties.

LONG-DISTANCE FLIGHTS.

In the House of Commons on June 22, in reply to a question by

LORD ASPLEY concerning the Horsley which fell into the Persian Gulf, the UNDER-SECRETARY OF STATE FOR AIR made the following statement:—

As regards the first part of the question, the damage which was sustained by the machine in hitting the water makes it improbable that the exact cause of the forced landing will ever be ascertained with certainty. The evidence available points to its being probably due to some temporary stoppage of the petrol pipe and not to any inherent defect in the construction of the aircraft or engine, which have both given excellent results under normal Service conditions.

As regards the remaining parts of the question, I have noticed with interest the recent performances of all-metal monoplanes in long-distance flights and their position in this country and some of these would be capable of carrying out long-distance flights, but it cannot be assumed that the all-metal monoplane has been proved to be a type peculiarly suitable for the general purposes either of the Air Force or of Air Transport undertakings.

LORD ASPLEY: Is it not a fact that the designer of the Wright Company was an Englishman and formerly employed in the Farnborough workshop?

SIR P. SASSOON: Yes, Sir, it is true that this gentleman who assisted the Wright Company in developing the air-cooled engine was an Englishman, and until 1910 was employed at Farnborough.

[As a matter of fact, Mr. Heron, to whom the reference applies, did not join the Wright Co. till some time after the Whirlwind engine had been made a success. The Whirlwind was primarily the work of Mr. Meade and Mr. Charles Lawrance.—C. G. G.]

THE COST OF LONG-DISTANCE FLIGHTS.

In the House of Commons on June 21, in reply to a question by SIR W. DE FRUCE, the UNDER-SECRETARY OF STATE FOR AIR said that in view of the miscellaneous character of the expenditure involved in carrying out a trial aeroplane flight from this country to India, he could not give an inclusive figure for the cost. Flights of this character were undertaken as a normal experimental service in connection with the development of the range and endurance of Service aircraft. No specific provision was therefore made for them in Air Estimates, but their cost was defrayed from the appropriate votes.

ACCIDENTS IN THE R.A.F.

In the House of Commons on June 22, in reply to a question by MR. ROBINSON, the UNDER-SECRETARY OF STATE FOR AIR said that the average life of an aeroplane since the date of purchase or of reconditioning, which was equivalent to the complete rebuilding of the aircraft, was one year and seven months. The oldest of the aeroplanes involved in the fatal accidents in the R.A.F. in 1927 was less than four years old. Only two out of the 18 were of war-time design. He had therefore no reason to believe that part of the loss of life was due to old and faulty machines.

[Evidently Sir Philip Sassoon has been misinformed because as a matter of fact up to the date of his reply there had been 21 fatal accidents in the R.A.F. involving 9 machines of war-time design. That however is beside the point. The real fault in the administration of the R.A.F. lies in the fact that some very modern aeroplanes are no improvement on war-time designs, so far as safety is concerned,—thanks to English conservatism and stupidity,—and many of them are more dangerous.—C. G. G.]

AIR WORTHINESS CERTIFICATES.

In the House of Commons on June 22, in reply to a question by LT.-CDR. KENWORTHY, the UNDER-SECRETARY OF STATE FOR AIR circulated the following statement:—

"British certificates of airworthiness are not issued in respect of aircraft manufactured abroad owing to the impossibility in their case of giving effect to the requirements of the Air Navigation Regulations concerning the approval of design and the inspection of workmanship and materials."

"The regulations, however, provide for the acceptance as valid in this country of certificates of airworthiness issued by foreign Powers, and as soon as the international minimum conditions governing the issue of certificates of airworthiness have been adopted by the International Commission for Air Navigation, such certificates issued by States who are parties to the International Air Convention will normally be rendered valid without question when the aircraft have been purchased by a British owner."

"Pending the adoption of these international minimum standards some physical examination of the aircraft is necessary before a foreign certificate can be rendered valid. Special permission may, however, under existing regulations, be given in certain circumstances for flight for experimental purposes in this country of foreign-built aircraft purchased by British subjects without their certificates being rendered valid."

MORE FRIGHTFULNESS AT HENDON.

In the House of Commons on June 22, in reply to a question by MR. GROVES, the PRESIDENT OF THE BOARD OF EDUCATION said that he agreed with the Committee of the R.A.F. Display that the Display might be both of interest and educational value to school children and he was not prepared to interfere with their attendance at it. MR. GROVES asked whether the Noble Lord was aware that there was a cessation of militant patriotism in our schools and did he not think that, in view of the desire for peace this display was a retrograde step? LT.-CDR. KENWORTHY suggested that children should leave before the last item on the programme, which would be a scene representing the bombing of a native village. MR. DUFF-COOPER thought that the horrors of war depicted by the R.A.F. would be likely to deter young people from admiration of war. LORD E. PERCY said he had not heard about any indignation at all among local authorities and he thought that when children had a chance of seeing a display of this kind neither the Board of Education nor Parliament ought to take up the attitude of a crotchety maiden aunt.

[One would love to see Cdr. Kenworthy trying to take several thousand school children away from the Display at the beginning of the most blood-thirsty part of the programme.—C. M. MCA.]



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

NEW MACHINES IN THE R.A.F. DISPLAY.

[Hereafter will be found a brief description, and sundry pages of illustrations, of all the new types of aircraft which will be seen at the R.A.F. Display at Hendon on Saturday next, July 2. No more detailed descriptions can be given, owing to the range of the Official Secrets Act. No Fleet Air Arm machines appear, because the Admiralty refuses to allow any publicity to be given to them. Details are, naturally, in the hands of all foreign Military, Naval and Air Attachés.—C. G. G.]

THE ARMSTRONG-WHITWORTH ATLAS.

The Atlas made its first public appearance at the 1926 R.A.F. Display, though a very similar machine known as the Ajax competed in the King's Cup Race of 1925. Since 1926 the Atlas has been put into production as the standard Army Co-operation machine of the Royal Air Force as a replacement of the Bristol Fighter which has done such magnificent work ever since 1917.

The Atlas shown at this year's Display has been equipped for General Purpose duties, as a replacement of the D.H.9a, which make it necessary to carry a larger load of petrol and bombs. As these machines are frequently used over desert country arrangements are made for carrying a spare wheel, a considerable quantity of drinking water and rations, sleeping equipment, tools, etc.

It is fitted with a 385 h.p. Armstrong-Siddeley Jaguar engine, and this engine is fitted with a supercharging device so that, according to the manufacturers, the speed remains practically the same at all heights up to 10,000 feet.

The Atlas is no bigger in overall dimensions than the older type of Army-Co-operation machine so that it can be housed in the same sheds and handled with the same ease. In spite of this the amount of equipment and the fuel that can be carried is very largely increased, the strength factors are higher throughout, and it is at least 25 miles per hour faster. This is no disparagement of the Bristol Fighter, and is merely the natural progress of ten years.

It is of all-steel construction and the use of welding has been avoided so that high-grade steels can be used and any part of the structure can be replaced in the field.

Dual controls are fitted, and the comfort and convenience of the crew has been well studied.

In the machine shown in the photograph two extra tanks have been fitted under the top plane for increased petrol supply on long flights. In the ordinary way the Atlas carries 76 gallons and the two extra tanks carry an additional 50 gallons.

THE AVRO AVA.

The Ava is a twin-engined Coast Defence and Night Bomber fitted with two 650 h.p. Rolls-Royce Condor engines.

A sister machine was present at the 1926 Display. That machine was of mixed wood and metal construction, the fuselage being of steel and the wings of wood. The new Ava is all-steel, and as such is the largest all-steel aeroplane in this country.

Externally the only difference between the two machines is

that the all-steel wings have square wing tips whereas the wooden wings had semi-circular tips.

THE BOULTON AND PAUL SIDESTRAND.

The Sidestrand is a high-performance all-metal twin-engined Day Bomber fitted with two 450 h.p. Bristol Jupiter engines. The machine is of the type of all-metal construction developed by Boulton and Paul Ltd. and embodies considerable improvements in detail, particulars of which are not yet available for publication. The clean lines of the fuselage and the elimination of unnecessary excrescences represents a considerable advance in body design for machines of this class.

The twin-engine arrangement provides a very good forward field of fire and an exceptionally good forward view. The undercarriage is of the divided-axle type with oleo shock absorbers, as used on the Boulton and Paul Bourges and Bugle. All control surfaces are balanced.

The rear cockpit is provided with a prone position built into the bottom of the fuselage to enable the gunner to fire under the tail. All bombs are stowed inside the fuselage thus eliminating the drag of the usual external type of bomb-rack.

The two Bristol Jupiter engines are mounted on the leading edge of the bottom planes and the exposed engine structure is reduced to a minimum.

No indication of the performance of the Sidestrand is permitted, but it may be mentioned that the load carried is up to the average for this class of machine and the performance figures are particularly good.

THE BRISTOL BULLDOG.

The Bulldog is a single-seat all-metal fighter biplane fitted with a 450 h.p. Bristol Jupiter VII supercharged engine. It is a very clean single-bay biplane with an armament of two Vickers guns which are fitted in troughs in the sides of the fuselage.

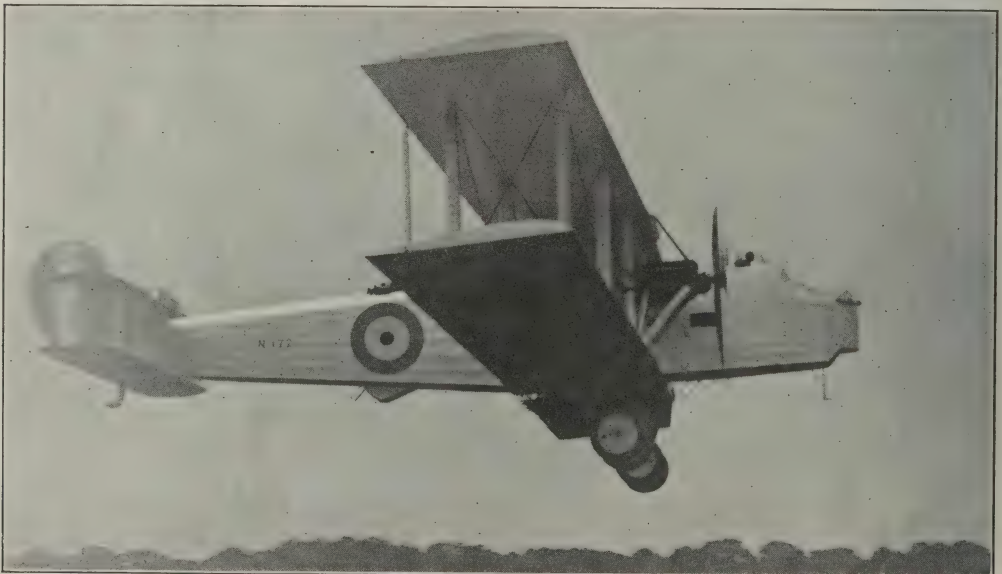
The pilot's cockpit is behind the rear spar of the top plane, and forward of the cockpit the fuselage slopes down to the nose. The engine is very carefully cowled both in front and behind the cylinders and the overhead valve gear has been enclosed.

The Jupiter VII engine embodies generally the features of the Mark VI, but in place of the spiral induction system the back half of the crankcase has been modified and a geared blower fitted. The Bristol triplex carburettors are retained but are modified to suit the blower.

The increase in weight of the Jupiter VII is 35 lbs. and the decrease in diameter over the standard Jupiter VI is two inches. The Mark VII develops 440 h.p. at 12,000 ft., as against 330 h.p. with a normal Jupiter VI.

The installation of the Jupiter VII is interchangeable with the Jupiter VI. The increase in performance at altitude with the Mark VII is remarkable over any machine fitted with the normal unsupercharged engine.

The main fuel tanks are fitted in the top planes and the



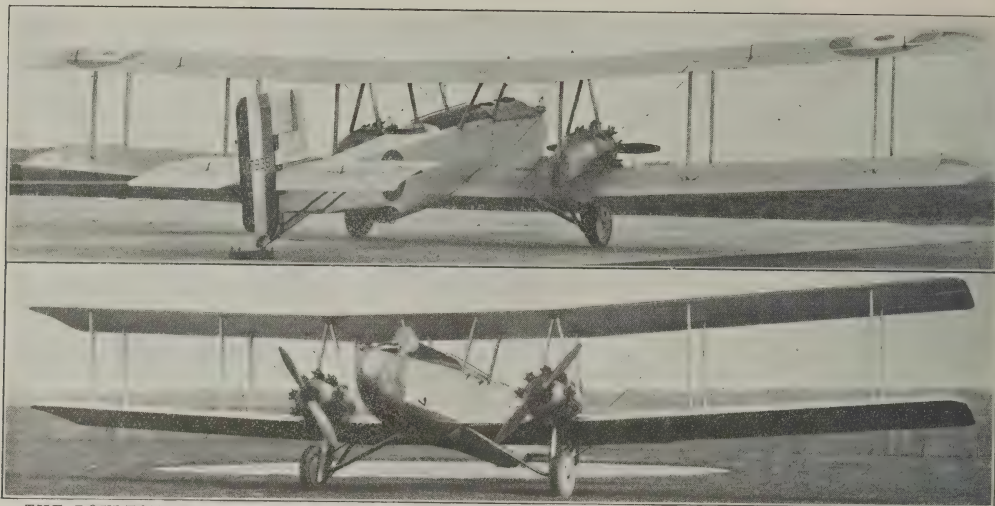
THE AVRO AVA.—A twin-engined Coast Defence Bomber or Torpedo Carrier of all-steel construction fitted with two 650 h.p. Rolls-Royce Condor engines.



THE ARMSTRONG-WHITWORTH ATLAS.—A two-seat Army Co-operation or General Purposes biplane fitted with the 385 h.p. Armstrong-Siddeley Jaguar engine. This type, with Army Co-operation equipment, has gone into production as a replacement for the Bristol Fighter.



THE SHORT CHAMOIS.—A two-seat Corps Reconnaissance biplane fitted with a 450 h.p. Bristol Jupiter engine. This machine is of all metal construction with the exception of the wing covering.



THE BOULTON AND PAUL SIDESTRAND.—A twin-engined all-steel Long-Distance Bomber fitted with two 450 h.p. Bristol Jupiter engines.

wing section in the region of the tanks is thickened so as to accommodate the tanks without causing any violent interference.

The tail unit is a cantilever structure, and consists of fin, tail plane, balanced rudder and elevators.

No constructional or performance figures are available for publication.

THE DE HAVILLAND HOUND.

The Hound is a high-performance two-seater Day Bomber fitted with a 550 h.p. specially geared Napier Lion engine. In general appearance it is singularly like the earlier D.H.9, and in fact, the D.H. Moth. In this respect D.H. aircraft have always retained the hereditary characteristics of their ancestry.

It is of all-wood construction and has the typical three-ply wood-covered fuselage. The engine is fairly completely en-

cowed, only the valve-gear casings of the two side blocks of the engine project from the cowl.

The radiator is under the engine and inside the cowl behind a shuttered opening in the lower part of the nose. When the radiator shutters are closed the nose presents a perfectly streamlined appearance.

The cowling of the centre block of cylinders is carried back so as to form the pilot's windscreen. Particular care has been taken to eliminate all extraneous excrescences and all those which are necessary have been made as inconspicuous as possible, with the result that the Hound presents a very clean and workmanlike appearance.

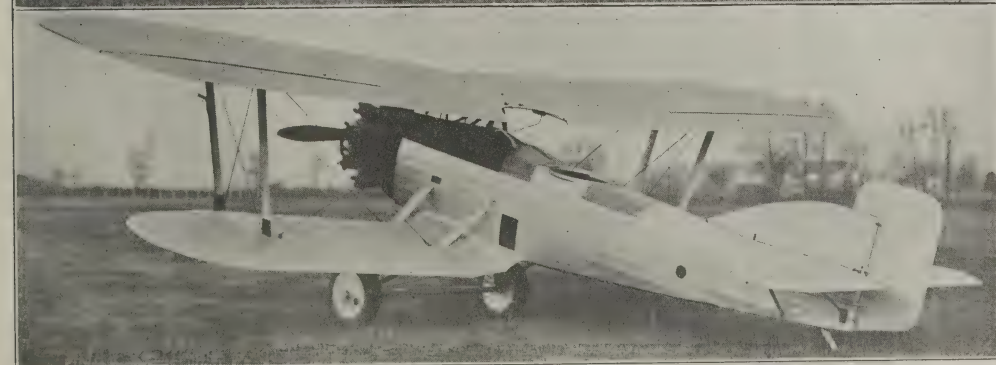
Ailerons are fitted to the bottom plane only and these are operated direct from the stick through the well-known D.H. differential control. Elevator and rudder controls are by straight external cables.



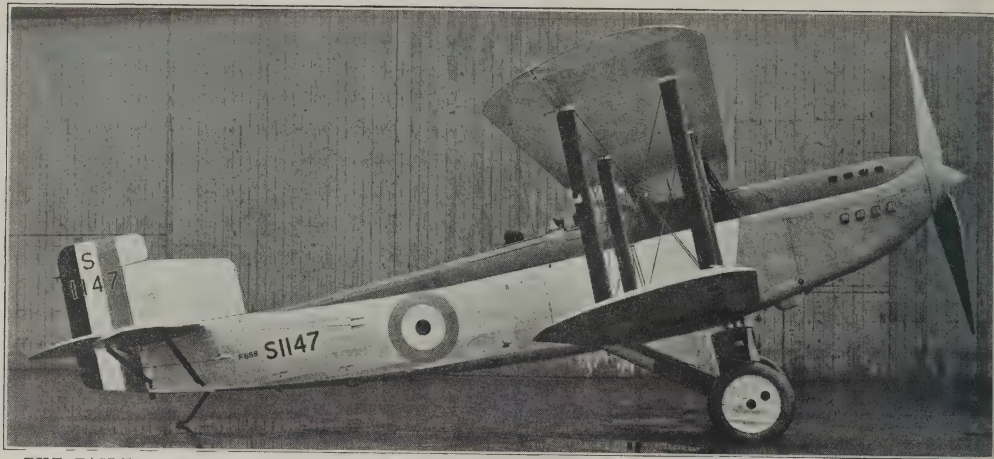
THE BRISTOL BULLDOG.—A single-seat Fighter of all-metal construction fitted with a supercharged Bristol Jupiter engine.



THE DE HAVILLAND HOUND.—A two-seat high-per formance Day Bomber fitted with a specially-geared Napier Lion engine.



THE GLOSTER GORING.—A two-seat Day Bomber fitted with a 450 h.p. Bristol Jupiter engine.



THE FAIREY III F.—A two-seat General Purposes biplane fitted with a specially-geared Napier Lion engine. This machine, as a three-seater convertible land or seaplane, has been supplied in numbers to the R.A.F.

No performance figures are available for publication, but the Hound is claimed to be the fastest two-seater aeroplane in the World, and it certainly has proved itself to be superior in speed and climb to any single-seater fighters with which R.A.F. Squadrons are at present equipped.

THE FAIREY III F.

The III F is a two-seater General Purposes biplane fitted with a 450 h.p. Napier Lion engine. It is a natural but highly refined development of the III D, which has been in use in the R.A.F., both as a landplane and as a seaplane, since 1920.

The principal modifications are the re-designed fuselage, a simplified undercarriage and a new tail, all of which make the machine exceptionally eyeable, and give the impression of high speed—which in fact the machine has.

The Napier engine has been completely encowled and a retractable radiator has been fitted in the belly of the fuselage behind the engine. The cowl design is a very fine piece of work and it is hard to believe that it encloses a three-row "W"-type engine. The nose begins with a spinner mounted on the boss of the Fairey-Reed airscrew.

The undercarriage is of the normal Vee type fitted with oleo shock absorbers.

The wing cellule follows III D practice, and although the III F wings differ slightly from those fitted to the III D, they are interchangeable.

The tail unit is now fitted with balanced rudder and elevators.

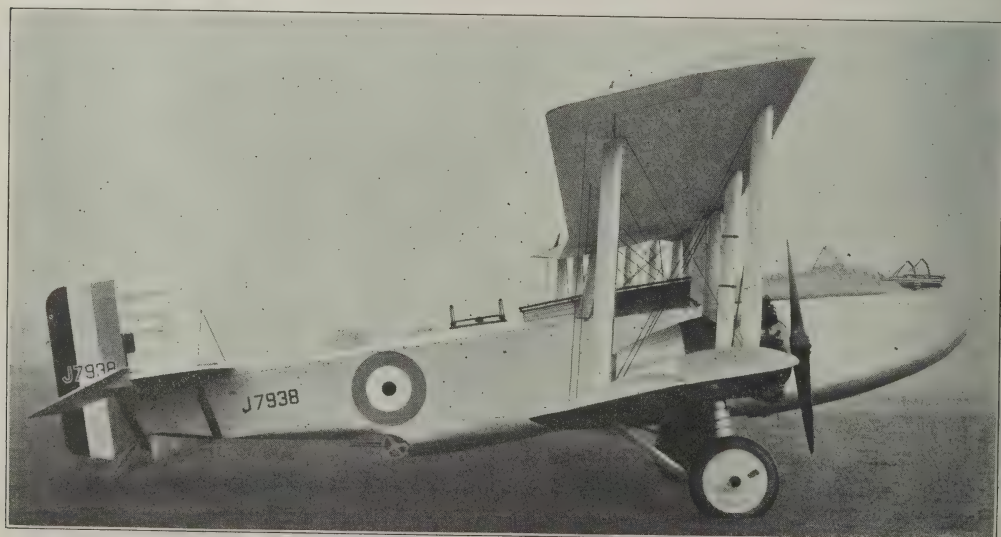
The III F has also been supplied in numbers to the R.A.F. as a three-seater landplane, which can be converted into a seaplane, and it was on three machines of this type that the 1926 Cairo—Cape Town—Cairo flight was successfully made.

The III F to be seen at the R.A.F. Display is of the two-seater General Purpose (D.H.9a replacement) type which varies slightly from the service type. It is provided with fittings for a seaplane float undercarriage, and is the only machine in its class for which floats are provided.

THE GLOSTER GORING.

The Goring is a two-seat Long-Distance Bomber fitted with a 450 h.p. Bristol Jupiter engine with supercharger. This machine being the first of its type is constructed mainly of wood with steel fittings, but designs are in hand for all-metal construction.

The wings are of the single-bay type, and the aerofoil used is a high-lift Göttingen section, slightly modified, which has given exceedingly good results in actual flying. With an ordinary Jupiter engine the machine has a very large range of speed, and with the supercharged engine it is expected that a much higher top speed will be attained. The thick wing section has allowed the petrol tanks to be put entirely within the wings. Two petrol tanks, one in each wing, are flush with the wing surface and each has a capacity of 75 gallons. The top plane is attached to the fuselage by an inverted Vee steel tube cabane and the bottom wings are attached to two wing roots, which latter are braced to the fuselage by two pairs of short struts. There are two sets



THE BOULTON AND PAUL SIDESTRANDER.—A twin-engined, all-metal Day Bomber with two 450 h.p. Bristol Jupiter engines. The three gun positions are very clearly shown.

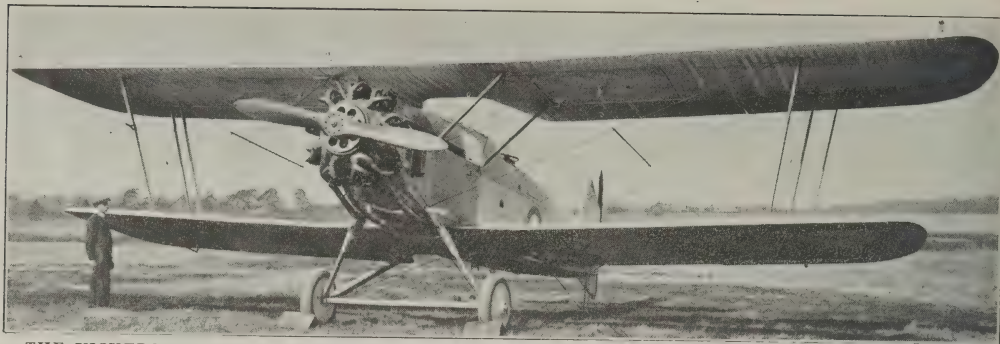
THEY ALL



FLY MOTHS

CHARLES C. DICKSON

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



THE VICKERS VALIANT.—A two-seat all-metal General Purposes biplane fitted with the 450 Bristol Jupiter engine.

of interplane struts, one on either side of the fuselage. The wide-track undercarriage is attached to these wing-roots.

The fuselage is very roomy and ample space has been provided for all the necessary equipment. The pilot's seat has a 4-inch up-and-down adjustment and the observer's seat automatically displaces itself when the observer requires his full freedom for fighting.

The observer has two positions, one immediately behind the pilot for fighting purposes and a prone position under the pilot for bombing purposes.

Particular attention has been paid to the design of the controls. The ailerons, which are fitted to the top plane only, are on ball bearings and are controlled through a differential gear which is entirely within the wing. Ailerons and elevators are worked through the conventional joy-stick which is very short and is pivoted to the elevator cross-shaft by a very compact universal joint designed so as not to obstruct the bomber when in the prone position below the pilot.

The rudder control consists of two stirrups which slide on a pair of steel tubes placed fore-and-aft along each side of the fuselage, so that there is nothing to interfere with the pilot's view of the bomber.

All control wires are swaged rods with the exception of the aileron wire between the top wing and the control gear in the cockpit where the wire is rather exposed to accidental damage. Most wires run direct without fairleads but where a definite bend is required a chain and sprocket is used.

Tecalemit pressure greasing is used wherever possible.

The designer's aim has been to avoid all projections which cause drag and interference and the result is a particularly clean and highly efficient aeroplane. On test the Goring is stated to have the manoeuvrability of a single-seater fighter although it is nearly double the size and weight of a modern scout

THE GLOSTER GAMECOCK.

The Gamecock which will take part in the fly past of new machines is the machine on which Flg. Off. A. H. Montgomery of 32 Sqdn., R.A.F., won the Sassoon Challenge Cup on May 27, 1927, by covering a 100 mile cross-country course at an average speed of 156 m.p.h. This type is now standard equipment of Nos. 23, 32 and 43 Squadrons, R.A.F., and is sufficiently well-known to render further description unnecessary.

THE HANDLEY PAGE HINAIDI.

The Hinaidi is a twin-engined Night Bomber fitted with two 485 h.p Bristol Jupiter VIII engines. It is a development of the Hyderabad, the main alteration being the substitution of Jupiter engines for Napier Lions.

The Hyderabad is one of the standard night bombers of the R.A.F. and all the good features of this machine, in the form of view, manoeuvrability, weight-carrying qualities and high performance have been embodied and greatly improved in the Hinaidi.

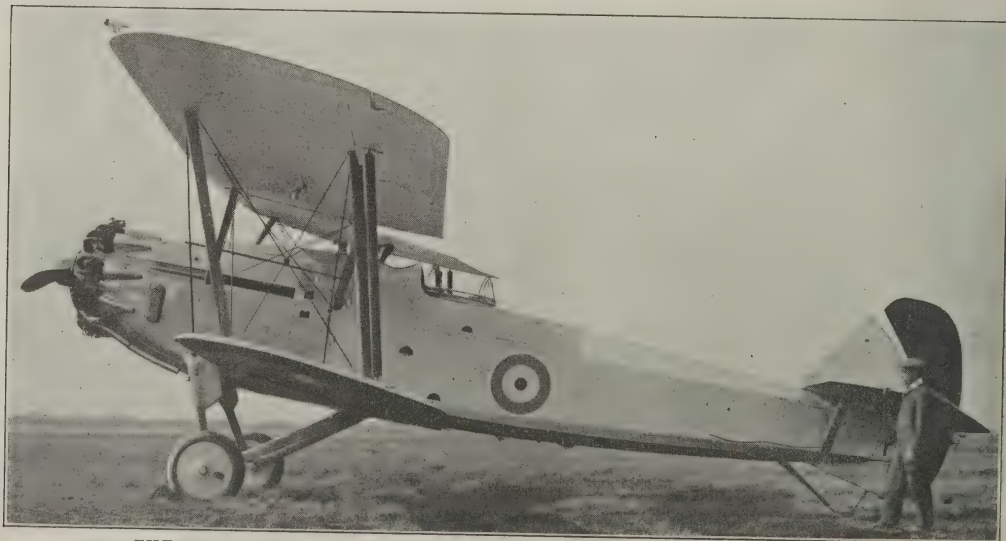
The engines are Jupiter VIIIs which are modifications of the Mark VI fitted with the Farman self-centralised bevel reduction gear, the rights for the construction of which have been acquired by the Bristol Aeroplane Co., Ltd. The particular engines fitted have a compression ratio of 5.3 to 1 and develop a normal horsepower of 485 and a maximum of 525 h.p.

The engine units are mounted in nacelles between the planes and are readily accessible for engine maintenance.

The Hinaidi is of all-wood construction except for the engine housings.

The disposition of the crew is arranged in the "line ahead" grouping, which allows the pilot to have the best possible view both directly ahead and to both sides.

The machine has a high top speed, an exceptionally low



THE VICKERS VALIANT.—A side-view of the machine shown at the top of the page.

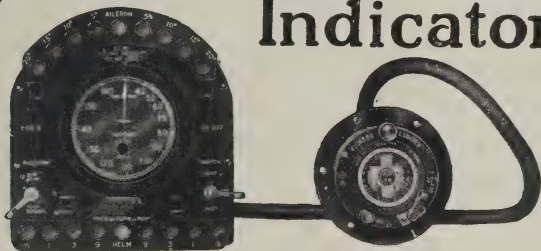
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(which is part of the present standard equipment of all "Imperial Airways" Aircraft and which will be used on the aeroplanes on the Cairo-Karachi Route) gives this indication.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

landing speed, and with full load it can maintain level flight and turn in either direction with only one engine.

THE HANDLEY PAGE HAMLET.

The Hamlet, the only civil machine taking part in the Fly-Past, is a small four-seater semi-cantilever monoplane fitted with two 180 h.p. Armstrong-Siddeley Lynx engines.

It is fitted with the patent Handley Page slot and trailing edge flap. The former runs the entire length of the wing and is a snug fit over the leading edge when in the closed position. The slot is operated by the pilot and is used for taking off and landing.

The Hamlet has the unique feature of being fitted for three alternate engine arrangements, namely: one 450 h.p. Bristol Jupiter VI, two 180 h.p. Armstrong-Siddeley Lynxes or three 137 h.p. Armstrong-Siddeley Mongooses.

The Hamlet has already been described in THE AEROPLANE so that there is little need to say any more than that the pilot is situated in the nose and that a well appointed cabin to accommodate four passengers is provided under the wing.

It is of all-wood construction, with the exception of the engine mountings and the wing bracing struts. The engine mountings are attached to the wing bracing struts and the front wing spar, and the vertical undercarriage legs are also attached to the wing bracing struts. The bottom ends of the two vertical undercarriage legs are hinged by two Vees to the bottom longerons of the fuselage thus providing a wide tracked, divided type undercarriage.

SPECIFICATION.

Span	52 ft. 10 in.	Petrol and oil	550 lbs.
Length	34 ft. 10 in.	Pilot	180 lbs.
Height	9 ft.	Commercial load	800 lbs.
Weight empty	3,470 lbs.	Weight loaded	5,000 lbs.
Performance with two Lynx engines.			
Speed, max.	114 m.p.h.	Speed at 10,000 ft.	102 m.p.h.
" at 5,000 ft.	111 m.p.h.	" landing	45 m.p.h.

THE HAWKER HORSLEY.

The Horsley is a two-seater Day Bomber fitted with a 650 h.p. Rolls-Royce Condor engine. This type of machine is standard equipment in Nos. 11, 15 and 100 Squadrons, R.A.F., and has been described and illustrated in many issues of this paper.

THE SHORT CHAMOIS.

The Chamois is a two-seater Corps Reconnaissance biplane fitted with a 450 h.p. Bristol Jupiter engine. It is completely built of metal with the exception of the fabric wing-covering. The fuselage is built up of duralumin sheets rivetted to oval channel-section formers of the same material.

The wings consist of two steel spars with duralumin ribs and are covered with fabric. The top plane is attached direct to the top of the fuselage and the bottom planes are attached to two wing-roots which are built into the bottom of the fuselage. The pilot is situated between the main spars of

the top plane, and the observer's cockpit is behind the rear spar.

As the fuselage in the region of the pilot's cockpit narrows to a point where the top plane is attached, the cockpit sides are cut fairly low, the wing section at the centre is thinned and the wing is cut away between the spars and at the trailing edge, the crew have an excellent view forward, upward and downward.

The undercarriage is wide, the Vees being attached at the extremities of the wing roots, the points of attachment being braced to the fuselage by short struts. Ailerons are of the Frise type and they do not extend to the wing tips. All tail surfaces are balanced.

THE VICKERS VALIANT.

The Valiant is a two-seater General Purposes biplane fitted with a 450 h.p. Bristol Jupiter engine. It is of all-metal construction with the exception of the covering.

The fuselage is a steel tube structure. The pilot's seat is situated high up in the fuselage so that the pilot's eyes are almost in a line with the chord of the top plane.

Forward of the cockpit the cowling has a pronounced slope towards the nose. The observer's cockpit is immediately behind the pilot and it is at a lower level so that even when standing up and operating the guns, the observer is well protected from the slipstream—a very important feature in two-seater high-performance machines.

The wings are built up of two spars and the usual ribs, all of duralumin, and are covered with fabric.

The undercarriage is of the usual Vickers oleo type.

The cowling forward of the pilot's cockpit is of metal and the engine is enclosed with the exception of the cylinder-heads. Behind each cylinder head is a streamline tail-piece.

Very complete equipment is carried and particular attention has been paid to the accommodation of this equipment with a view to simplifying the work of the crew as much as possible.

THE WESTLAND WAPITI.

The Wapiti is a two-seater General Purposes biplane fitted with a 450 h.p. Bristol Jupiter engine, designed to act as a replacement machine for the D.H.9a. The Westland company have embodied in the machine the largest possible number of parts which are interchangeable with the D.H.9a not only with a view to cheapening the production but to facilitate the supply of spares, large numbers of which are distributed throughout the operative areas of the R.A.F.

The Wapiti is naturally of all-wood construction and the fuselage has been completely redesigned to accommodate the comprehensive equipment required for aeroplanes of this class.

THE PTERODACTYL.

The Hill Pterodactyl to be flown at the Display is the identical machine seen at last year's Display.



THE WESTLAND WAPITI.—A two-seat General Purposes biplane fitted with a 450 h.p. Bristol Jupiter engine.

THE WESTLAND WIDGEON



THE IDEAL LIGHT AEROPLANE

The Widgeon III is a very strongly built and substantial light aeroplane and there is nothing flimsy about it and it is particularly suitable for real hard work. The machine carries passenger, pilot and about 50 lbs. of luggage. The engine is the well-known Cirrus Mark II, or the Armstrong-Siddeley "Genet." Being a parasol monoplane there is a most excellent view for both pilot and passenger in a downward direction, making the machine ideal for patrol or survey work.

In addition the wings are braced with struts and consequently there is no chance whatever of the rigging getting out of true and needing skilled attention. The passenger's entrance

is through a door in the side of the fuselage and he has a very roomy cockpit. The aeroplane can be supplied with dual control. The machine is economical to run, the petrol consumption being approximately 20 miles per gallon, and the oil consumption is about one pint per hour. The overall dimensions of the machine when folded are only 8 ft. 6 ins. high, 10 ft. 6 ins. wide, and 23 ft. 1 in. long.

All machines are furnished with an aerobatic certificate of Airworthiness for a total weight of 1,400 lbs., which allows for passenger, pilot and luggage, while the total weight can be increased to 1,600 lbs. without exceeding the permissible load for normal factor of safety.

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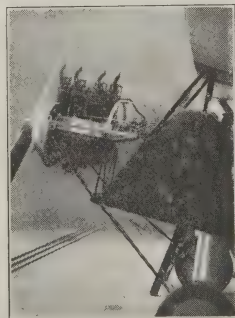
WESTLAND AIRCRAFT WORKS,
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View of the easy entrance to the passenger's cockpit.



Illustration of the way in which the Wings fold back.



View of Engine Installation.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE DE HAVILLAND DIFFERENTIAL AILERON.

Since the de Havilland differential aileron control was first publicly described in 1923 it has been used on all de Havilland aircraft, and on a considerable number of aeroplanes of other makes, and it has come to be regarded as quite a definite improvement on the normal type of aileron.

Nevertheless, people generally do not know quite how great an improvement it can be, and it is fairly certain that in a number of cases where differential ailerons have been used they have been used in a form which does not give the best possible results.

This is not surprising. The effectiveness of this form of aileron control depends upon securing precisely the correct relation between the movement of the down-going and the up-going aileron. This relation determines not only the effectiveness of this form of aileron but also the amount of automatic balancing which is produced.

It is possible to produce a differential gear giving such a relation between the movement of the two flaps that the ailerons are exceedingly effective, but at the same time are, under some conditions, violently over-balanced and liable therefore to take charge.

One might expect that a very close approach to best ratio of differential movement could have been predicted from the results of model tests on ailerons, but experience has shown that the results of model tests give misleading figures for the total resultant force on the control stick or wheel, and as it is this force that settles whether the control shall be light or heavy, and whether the ailerons will have any tendency to "take charge," the de Havilland company have been forced to discover the most satisfactory compromise by test at full scale, which has necessarily been a somewhat slow process.

In the case of their most recent machines a differential aileron gear has been used which gives almost perfect aileron balance, consequently a very light control, and at the same time a control at least as powerful as the normal type of aileron at ordinary speeds, and one which is entirely effective at and beyond the stalling angle of the machine.

The usual form of aileron fails to be effective at the stall, not because movement of the ailerons ceases to change the lift of the two sides of the wing in the required way, but because such movement causes a very largely increased drag on the side of the wing of which the aileron is pulled down. This increased drag on the low wing slows up that wing, and the required increase of lift is lost because the air speed of the wing on that side is reduced. If the aeroplane has a rudder powerful enough to overcome

the increased drag of this low wing, and therefore to prevent this slowing-up effect, ordinary ailerons are effective.

From this it will be obvious that the measure of the effectiveness of an aileron or other form of lateral control can be measured by the ratio between the lateral righting couple—or "rolling moment"—and the turning couple—or "yawing moment"—which it produces under any given circumstances.

Where both ailerons move, in opposite directions, through the same angle, both the rolling moment and the yawing moment produced increase roughly in direct proportion to the angular displacement of each aileron. The ratio between these two moments depends on the incidence of the wing as a whole. And as stalling is approached the yawing moment increases, and the rolling moment decreases for a given aileron displacement.

In the differential control, as is well known, the aileron on the wing-tip which the pilot desires to raise is moved downwards at a slower rate than the aileron on the opposite tip is raised. As a result a greater proportion of the rolling moment is in this case produced by reducing the lift on the high wing.

At the same time the increase of drag on the low wing is less, because for a given rolling moment the downward moving flap has not been moved so far. On the other hand, the increased movement of the up-going flap increases the drag of the high wing, and so tends to produce a reversed yaw.

If a large movement of the control stick is made the down-going aileron ceases to move downwards and then begins to move up again. When this happens all the increased rolling moment is provided by reducing lift on the high wing, the drag of the low wing ceases to increase and begins to decrease, but the drag of the high wing goes on increasing.

As a result, such a large movement of the control produces a rolling moment, which goes on increasing, but a yawing moment which decreases. And this is precisely what is required to give effective aileron control when stalled.

In Fig. 1 are shown the motions of the up-and-down-going flaps for a given movement of the pilot's hand for the D.H.

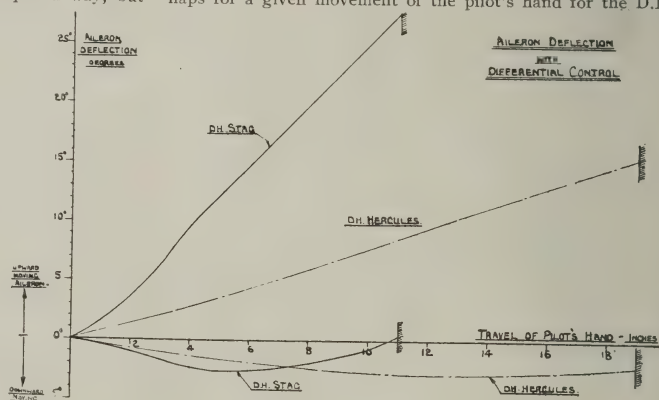


Fig. 1. DIFFERENTIAL AILERON MOVEMENTS.—This figure shows the actual measured displacement of the ailerons of the D.H. Stag and the D.H. Hercules plotted against movement of the pilot's hand in inches. The essential feature is that the down-going aileron reaches a deflection of about $3\frac{1}{2}^\circ$ when the up-going one is at about 12° and then reverses its movement.

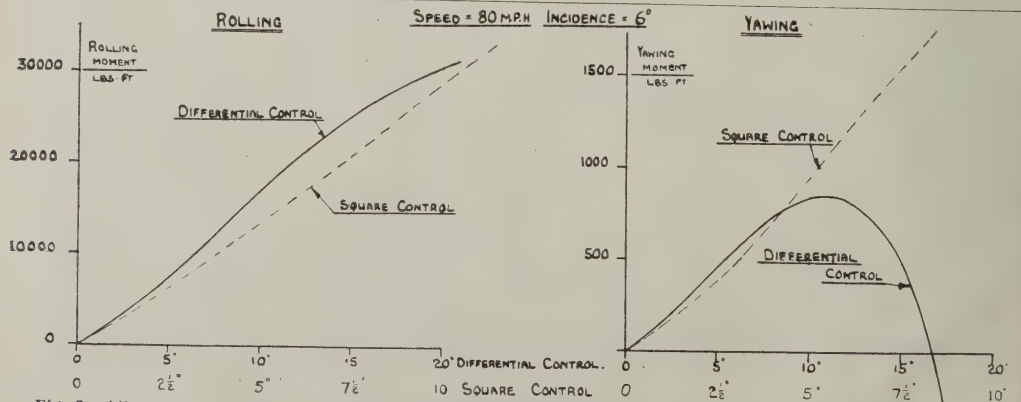


Fig. 2.—Aileron Control of the D.H. Stag. Curves of rolling and yawing moment in normal flight plotted against aileron displacement.

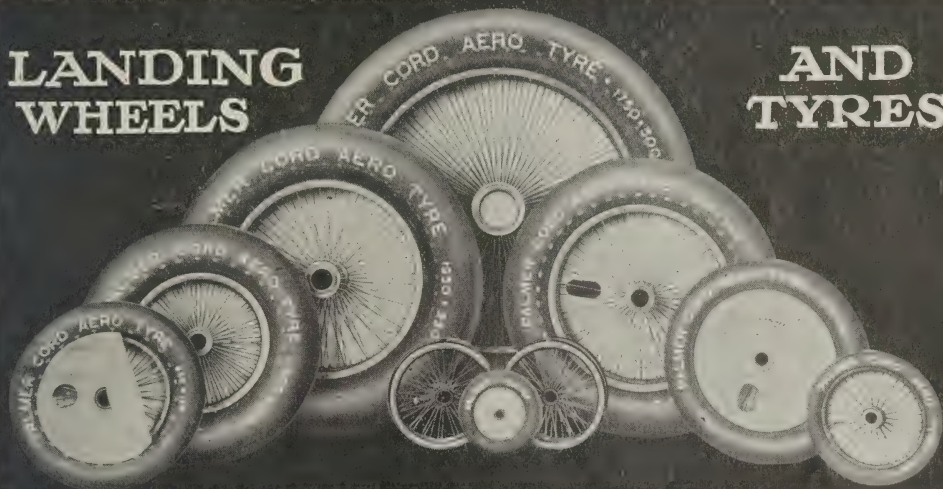


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		Length	Bore				Length	Bore				Length	Bore	
375 x 55	168	111.12	25.4	Central	700 x 100	112	150.	38.09	Central	1000 x 150	210	185.	60.32	Central
300 x 60	16	111.12	25.4	Central	"	176	178.	44.45	Central	1000 x 180	148	220.	80.	Central
450 x 60	30	89.	31.75	Central	"	179	178.	55.	132/46	"	149	185.	55.	Central
"	172	130.	38.09	Central	650 x 125	119	178.	55.	132/46	"	155	220.	66.67	Central
575 x 60	21	160.	28.	Central	"	147	178.	55.	Central	"	166	185.	55.	125/60
"	180	150.	38.09	104/46	"	188	120.	34.92	Central	900 x 200	107	185.	55.	Central
"	186	120.	34.92	Central	750 x 125	77	178.	44.45	132/46	"	108	185.	55.	125/60
"	90	150.	38.09	Central	"	92	185.	55.	135/50	"	128	220.	66.67	Central
650 x 65	78	178.	44.45	132/46	"	95	185.	55.	Central	"	137	250.	80.	Central
"	79	178.	44.45	Central	"	99	178.	38.89	132/46	"	157	185.	80.	Central
"	100	178.	38.09	132/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
"	101	178.	31.75	132/46	"	176	178.	44.45	Central	1100 x 220	134	220.	66.67	Central
600 x 75	21	160.	28.	Central	800 x 150	161*	185.	55.	135/50	"	136	250.	80.	Central
"	180	150.	38.09	104/46	"	162*	185.	55.	Central	975 x 225	192	185.	60.32	Central
"	186	120.	34.92	Central	"	163*	185.	66.67	135/50	"	194	185.	55.	125/60
"	190	150.	38.09	Central	"	169†	185.	55.	135/50	1250 x 250	133	250.	80.	Central
700 x 75	78	178.	44.45	132/46	"	177	185.	55.	135/50	"	154	304.8	101.6	Central
"	79	178.	44.45	Central	"	183	185.	55.	Central	1500 x 300	115	304.8	101.6	Central
"	100	178.	38.09	132/46	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
"	101	178.	31.75	132/46	1000 x 150	167	185.	55.	125/60	1750 x 300	139	400.	152.4	Central
700 x 100	77	178.	44.45	132/46	"	174	250.	80.	Central	"	191	350.	150.3	Central
"	92	185.	55.	135/50	"	182	185.	55.	Central	1750 x 350	193	400.	125.	Central
"	95	185.	55.	Central	"	187	220.	66.67	Central					
"	99	178.	38.89	132/46	"	201	185.	60.32	125/60					

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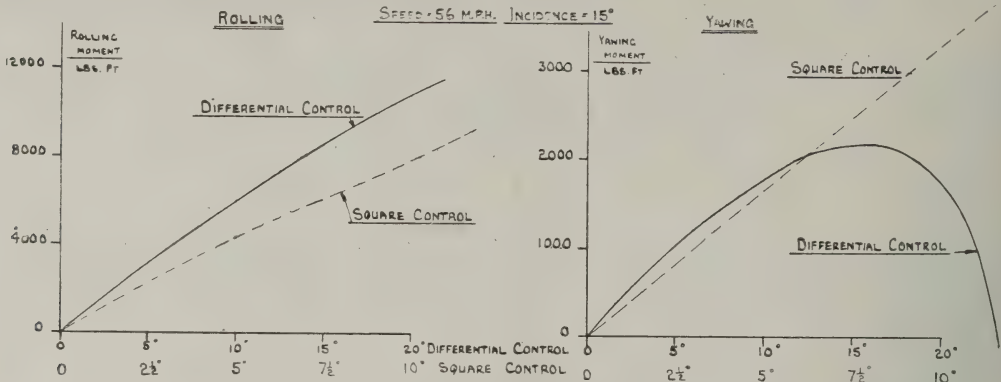


Fig. 3.—Aileron Control of the D.H. Stag. Curves of rolling and yawing moment at stalling speed plotted against aileron displacement.

Stag and the D.H. Hercules. The Hercules is a much heavier machine than the Stag, and has accordingly a much lower gear on her controls.

Thus, only 4 inches movement of the top of the stick on the Stag gives 9° movement to the up-going aileron, but 12 inches movement of the wheel of the Hercules is needed to give the same aileron displacement. Apart from this the two curves are similar, that is the relative motions of the ailerons in the two cases are practically identical.

In both machines the down-going flaps reach a maximum displacement of about 3° when the up-going ones are at about 12°, and thereafter the down-going flaps reverse their motion. When this reversal takes place it can be seen that the lift load on the flap which is displaced downwards is helping it in its movement—and therefore when a normal aileron control would tend to become increasingly heavy this type is automatically tending to balance itself.

As a matter of fact, this automatic balancing effect is so complete with this particular ratio of motion between the two ailerons that in the Hercules the wheel may be put into any position and left there. All the controls in this machine run on ball-bearings, and friction is very small indeed, but it is enough to hold against the unbalanced loads on the ailerons.

The aerodynamic effects of this aileron arrangement are shown in Figs. 2 and 3, both relating to the D.H. Stag.

Fig. 2 refers to flight at 80 m.p.h. and 6° incidence.

Fig. 3 refers to flight at stalling speed and incidence (56 m.p.h. and 15°).

On the left of each figure is shown the rolling moment produced plotted against the angular movement of the up-going aileron. The dash line shows the rolling moment which would be produced by normal ailerons of the same size which move upwards and downwards through half the angular range of the up-going aileron of the differential system.

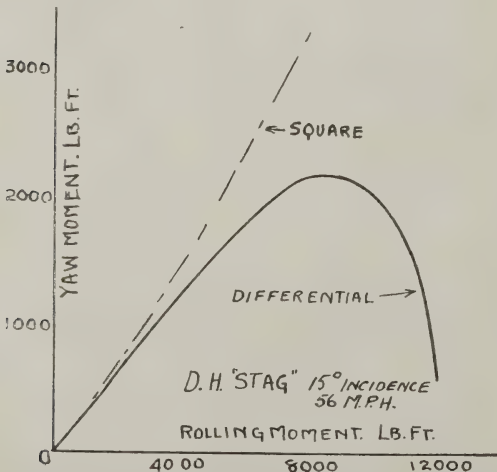


Fig. 4.—Aileron Control of the D.H. Stag at stalling speed. Yawing moment plotted against rolling moment.

This choice of one-half the angle scale for the normal, or "square," aileron is arbitrary, and no special deduction is to be drawn from the fact that the differential aileron in both cases gives a larger rolling movement in this comparison.

On the right in each figure the yawing moments of the two types of aileron are shown against the same scale of angles. In both cases it will be seen that the yawing moment of the differential aileron at first increases more or less with the angular displacement and the rolling moment, but when the up-going aileron has passed 12° or 15° the yawing moment falls off rapidly, and even in the stalled state becomes zero at a displacement of 23°. The yawing moment of the "square" control, on the other hand, is going steadily up, and it is precisely this which renders it ineffective at stalling speed.

A better comparison between the efficacy of the two types of control than those given by Figs. 2 and 3 can be obtained by comparing the yawing moments at the same value of rolling moment. This has been done in Fig. 4 for the D.H. Stag at stalling speed, and the figure shows quite conclusively how the differential aileron used vigorously, as it would be used at the stall, entirely avoids the large yawing moment of the ordinary aileron.

It should be noted that these results apply only when the relative movements of the two ailerons are as shown in Fig. 1, and when the wing is of R.A.F.15 or some similar section. It is possible that with any widely different section a different relation between the motion of the two flaps will be required to give the best results. So far no direct experimental evidence is available for other types of section, but there seems no reason to doubt that similar results are possible with any reasonable wing.

This type of control has shown that it is quite effective in stalled flight. In addition, it is practically perfectly balanced, and these advantages are secured without added complication or weight in the machine, and at the cost of no increased resistance.

The differential movement is secured purely and entirely by the correct arrangement of the angular relations between various members of the aileron-operating mechanism, and not by mechanism that would otherwise be unnecessary. This, of course, is a very important advantage, for weight,

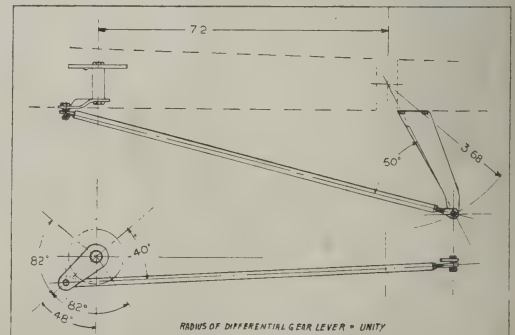
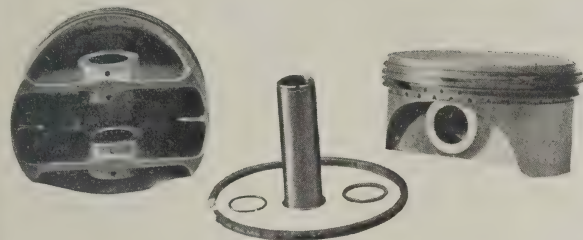


Fig. 5.—Diagram of the Differential Gear used on the D.H. Stag.

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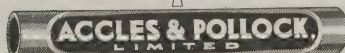
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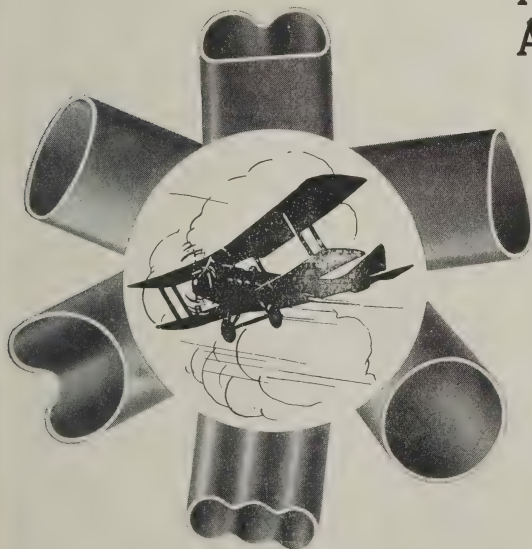
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resistance and unnecessary complications are all very objectionable features in any part of an aeroplane.

In Fig. 5 there is shown diagrammatically the essential relations of the various parts of the aileron-operating gear which are used on the Stag to give the degree of differential motion shown in the curve of Fig. 1. In this sketch the distance between the differential gear-centre and the aileron hinge centre and the radius from aileron-hinge to the end of the aileron-lever are given as multiples of the radius of the lever of the differential gear.

THE FIRST LIGHT AEROPLANE RECORDS.

On June 25, M. Magnard, flying an Albert monoplane (40 h.p. Salmson engine) made an officially-observed speed of 151 km.p.h. (99.77 m.p.h.) and two days later M. Edouard Albert, the designer and constructor of the Albert monoplane, reached a height of 6,200 m. (20,356 ft.) on the same machine. Both these performances are claimed to be the first World's Records to be made in the new Light Aeroplane Class created by the F.A.I. early this year.

It seems extraordinary that France, which has devoted so little time to, and has so few, light aeroplanes, should be the first to realise the advertising value of such records, when this country, which is literally stiff with Moths and Avians, and other kindred fry, any of which could have claimed every record allowed, without any faking, still prefers the honour of not holding a single World's record.

THE BIRMINGHAM PAGEANT.

On Saturday, July 16, a "Pageant" is to be held under the auspices of the Midland Aero Club at Castle Bromwich, near Birmingham.

The chief event of the meeting is to be the race for the Air League Challenge Cup, open to aircraft belonging to Flying Clubs associated with the Royal Aero Club, or bona-fide property of members of such Clubs, and flown by a Club member who is not a paid instructor. The race will be over the course Castle Bromwich, Sherrin-in-Elmet, Woodford, Castle Bromwich; a distance of 201 miles, and is confined to aircraft of a total weight empty not exceeding 400 kg.

In addition to the race for the Air League Cup two short races will be held, as follows:—

Low Power Handicap.—Open to all types of aeroplane, the total piston displacement of the power plant of which does not exceed 5,000 c.c. (which includes the Cirrus and Genet engines). Open to all pilots. Course approximately 10 miles. First Prize, £50. Second Prize, £25. Third Prize, £10, if five or more starters.

High Power Handicap.—Open to any type of aeroplane, the total displacement of the power plant of which exceeds 5,000 c.c. Open to all pilots. Course approximately 10 miles. First Prize, £50. Second Prize, £20. Third Prize, £10, if six or more starters.

In the Air League Challenge Cup Race additional prizes are announced by the Lancashire Aero Club of a Cup presented by *The Manchester Evening News* and £50 by *The Manchester Guardian* for the first machine to reach Woodford Aerodrome. In addition it has been decided that a proportion of the available net profits arising out of the race shall be divided between the competing Clubs in proportion to the number of machines flying in the Air League Challenge Cup Race on behalf of each Club.

Flying will begin at 10.00 hours, and till 12.30 there will be facilities for passenger flights. The short races will precede the start for the Air League Cup, which is to take place at 14.30 hours. There will be displays of flying by R.A.F. pilots throughout the afternoon, including acrobatic and crazy flying, aerial fighting and bombing displays, formation flying, etc., culminating in a "set piece" to be carried out by the County of Warwick Squadron (No. 605) of the Auxiliary Air Force.

Charges for admission will range from 1s. to 5s., and there is to be a "Lord Mayors' Enclosure" entrance to which including lunch, tea and car parking will cost £2 2s.

Entries for the various races made on official entry forms which can be obtained from The Hon. Secretary, Mr. Gilbert Dennison, Villa Road, Handsworth, Birmingham, can be received up to 17.00 hours, July 6th. There will be no entrance fees.



'IRAQ CRICKET.—The winners of the R.A.F. ('Iraq) Challenge Cup, 1927, No. 55 (Bombing) Squadron's Team, who have won all of the 23 matches they have played this season. Standing (left to right):—L-AC. Holmshaw, L-AC. Devereux, AC.I. Chapman, L-AC. Baggott, L-AC. Hall, and AC.I. Lang. Sitting:—L-AC. Thompson, Flt. Lt. Freehill, Flt. Lt. Sugden, and L-AC. Skinner. (Absent, Flt. Off. Heard-White.)

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: H. E. Perrin, 3, Clifford Street, London, W.1.]
Report for week ending June 26.

Flying time 7 hr. 35 min. **Instructors.**—Messrs. F. G. M. Sparks and S. L. F. St. Barbe. **Dual Instruction.**—J. H. Vasey, Miss Spooner, J. R. de Havilland, R. Drysdale Smith, H. M. Samuelson, Dr. Cook. The Club was represented at the Bristol Club's Display by Mr. Sparks on a D.H. Moth. Col. H. C. Woodcock, M.P., Chairman of the Bristol and Wessex Aero Club, appropriately arrived at Filton by air, having flown down from London in the Club Moth.

The Lancashire Aero Club.

[Sec.: C. J. Wood, Windsor Bank, Chapel Street, Hyde, Cheshire.]
Report for week ending June 25.

Typical mid-summer weather has prevailed during the week and during occasional lulls a total of 5 hrs. flying has been done, made up as follows:—**Dual with Mr. Brown.**—Messrs. Torres and Shiers 30 min. each, Allett and Miss Baelelin 25 min. each, Messrs. Linaker 30 min., Ward 15 min. **Solos.**—Messrs. Ward 40 min., Costa 15 min., Twemlow 10 min. **Joy-rides.**—With Mr. Lacayo—Mrs. Dunlop 10 min., Miss Easton 10 min., Mr. Caldecott 20 min. With Mr. Michelson—Miss Mercier 30 min. **Tests.**—20 min.

Although we, as a club, have given up flying as a serious pursuit the air round about is thick with flights and rumours of flights. Our Mr. Brown and our Mr. Cantrill, accompanied by Caldecott and Nelson and others, are purposing to leave Woodford at a hasty hour on Wednesday morning in the hope of climbing above the clouds, which will no doubt obscure the sun far more effectively than the moon can hope to do.

Our Mr. Leeming, accompanied by a press photographer, will leap off the Southport quicksands in the Avro Lynx Tourer for the same purpose. Mr. Leeming's jovial countenance has often been likened to the rising sun and some fear is felt as to whether the press photographer may not inadvertently photograph him in mistake for the genuine article. As at least a dozen other machines will also be groping their way up through the clouds in this neighbourhood at the same time the whole thing reminds one horribly of the start of a long-distance offensive dawn patrol.

Great activity is also noticeable in connection with the Air League Challenge Cup preparations. Committees meet anxiously and pore over plans and charts. People of melancholy visage walk about the aerodrome trailing tape measures behind them. Hiding in a dark corner of the hangar Messrs. Cantrill and Goodfellow, the luckless pilots chosen for the race, start with ill-concealed nervousness if anyone mentions "the Pennines" in their hearing, while Mark Lacayo, the reserve pilot, flutters about in terrible anxiety lest either of them should catch a chill.

The Manchester Guardian and *The Manchester Evening News* are presenting a prize of £50 and a cup respectively for the first arrival at Woodford aerodrome. When Mr. Cantrill was told of this he inquired gloomily, "What will be in the cup?"

The Newcastle-upon-Tyne Aero Club.

[Sec.: A. H. Bell, Cramlington Aerodrome, Northumberland.]
Report for week ending June 26.

Flying time—21 hr. 40 min.—QV 15 hr. 40 min., LX 6 hr. **Dual with Mr. Parkinson.**—Messrs. Thirlwell, Irving, Elmes, Dickinson, Jewett, McDougal, Rasmussen, Twine, Heaton, Shaw and Mrs. Heslop. **Solos.**—H. Ellis, W. B. Ellis, R. N. Thompson, Dixon, C. Thompson, C. Shaw, N. S. Todd.

Typical Race Week weather was experienced during the week, a gale blowing all day Tuesday, most of Wednesday, all Saturday and most of Sunday, complete with heavy hail and rain showers.

On Monday Mr. Parkinson took Mr. W. B. Ellis to Edinburgh and returned after lunch.

The Yorkshire Aeroplane Club.

[Sec.: D. M. N. Coles, Sherrin Aerodrome, Yorks.]
Report for week ending June 25.

Flying time 7 hr. 50 min., consisting of 4 hr. 35 min. dual, 1½ hr. cross-country, 1 hr. 35 min. solo, and 10 min. test. **Instruction.**—Messrs. Swift, Priestley, Crouther, Brackenbury, Hylton and Coles. **Solos.**—Messrs. Mann, Norway, Carter and L. S. Dawson.

The less we dwell on the Club Report this week the better. Sunday, Gale, resulting in Mr. Norway almost being successful in effecting a roll on our Renault Avro while taxying in. Monday, Gale. Tuesday, Gale, force 12 (Beaufort Scale). Wednesday, Gale. Thursday, Gale and rain. Friday and Saturday, Rain all day.

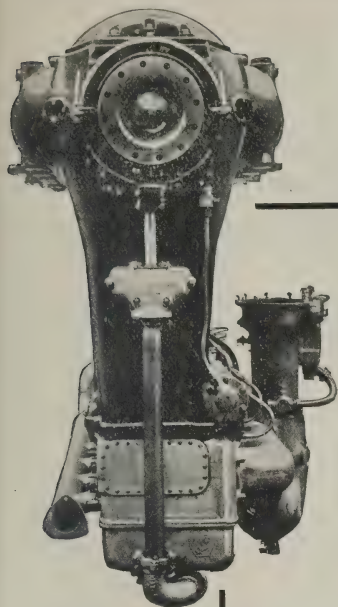
Only one machine, namely EBNN, has been available all the week, but in view of the weather bureau's effort this has not made much difference. It is rumoured that the phenomenal conditions for June may be attributed to the on-coming eclipse. If this is so, we wish it God's speed!

The Bristol and Wessex Aeroplane Club.

[Sec.: C. S. Clarke, Channel Road, Walton Park, Clevedon, Som.]
Aerial Pageant, Filton, Wednesday, June 22.—Fortunately the sun shone all day long, although a fairly high wind was blowing. Admission was free so as to attract the interest of all Bristol and the surrounding neighbourhood, and it was estimated by a local Press representative that 12,000 people were present in the aerodrome, and 20,000 outside and all over Filton Hill.

At about 15 hrs., there was a queue all the way from the centre of Bristol to Filton as well as a tremendous crowd at the aerodrome. The arrival of various machines created considerable interest amongst those of the public who came early. These arrivals included Flt. Off. Le Poer Trench in the H.A.C.T., Lord Ossulston, Lady Bailey, Mr. Merton with Miss Spooner as passenger, Capt. Shaw and Mr. Overbury in Moths, Mr. Mackenzie Richards, Mr. Dudley Watt and Mr. Bert Hinkler in Avians. Wing Cdr. Brown in an Avro Lynx and Sq. Ldr. Leacroft, Flt. Offs. Thorn and Watt and Sgt. Tomkins in Hawker Woodcocks from No. 17 Sqn. at Upavon. Mr. Bolas, George Parnall and Co.'s designer, came in a Parnall Pixie, and Messrs. Broad and Sparks arrived in Moths bringing Sir Sefton Brancker and Col. Woodcock, M.P., respectively, the latter the President of the Bristol and Wessex Club.

Mr. C. F. Uwings was O/C. events and all flying arrangements,



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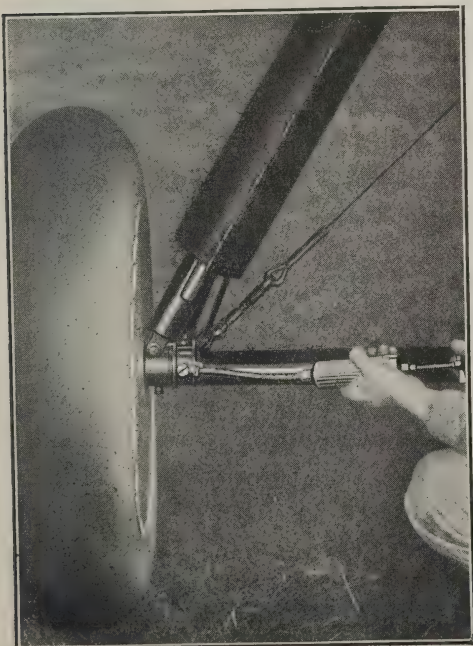
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keeping the whole afternoon going with a swing, and, within 10 minutes, the programme was up to time throughout the afternoon.

The day opened with a display and fly past. This was done very well, the machines taxiing round before the public enclosure then flying over once in excellent formation. The participants were the H.A.C., a D.H. Moth, an Avro Avian, a Bristol Lucifer, an Avro Lynx and a Hawker Woodcock.

Event 2 was a handicap race open to all comers for the Desprez Cup; there were eight entrants, the race being run in two heats of four machines. The entrants were:—Le Peor Trench, H.A.C.; Campbell, Bristol Lucifer; Bert Hinkler, Mackenzie Richards and Dudley Watt, Avians; Broad and Lady Bailey, Moths. The result was Le Peor Trench, 1st; Dudley Watt, 2nd; and Lady Bailey, 3rd. After the two heats, while waiting for the final, Mr. Broad went up and gave an exhibition of looping, rolling, etc., in his Moth.

After the final the three Hawker Woodcocks piloted by Pitt. Offs. Thorn and Watt and St. Tomkins, gave an exhibition of stunting in formation. Their show aroused tremendous enthusiasm.

The next event was a Utility Race for light aeroplanes for the Talbot O'Farrell Trophy. (Incidentally a very handsome one.) The entrants were Lady Bailey, Moth, Messrs. Sparks and Broad also in Moths, and Mr. Hinkler in his Avian, the result being Hinkler 1st and Broad 2nd.

After this Mr. Campbell on a Bristol Lucifer went up and did an exhibition of "crazy flying" which was very spectacular.

Then came the Second Handicap Race, open to all comers, for the Stiffbridge Cup. The entrants were the same as for the first race, the result being a close finish, Hinkler 1st and Broad 2nd.

While waiting for the final this time the Woodcocks did their second show which, if possible, was even better than the first.

While all this was going on, Mr. Overbury on the Hampshire Moth and Mr. Shaw of the Shell Co. were working hard taking up new members of the Club, and Mr. T. W. Campbell took up Mr. Talbot O'Farrell, a well-known music-hall singer, who was so pleased with his first try in the air that he presented his pilot with a silver cigarette case, as well as the Club with the O'Farrell Trophy.

As a Grand Finale, Mr. Thorn stunted a Woodcock.

The Pageant was due to be over at 6.30 and at 6.30 the Lady Mayoress of Bristol was presenting the prizes after a day that went without a hitch or a dull moment—thanks to the very excellent organisation of Mr. Uwins and his assistants at Filton, also to the excellent work done by the starter, Mr. Reynolds.

In the evening at the Victoria Rooms there was a meeting presided over by Col. Woodcock, M.P., at which the Lord Mayor, Sir Sefton Brancaer and Mr. Sparks made speeches.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth, Birmingham.]

Report for week ending June 25.

Flying time 6 hr. 38 min. Instruction.—E. P. Lane, R. Cazalet, Capt. J. E. Brewin, N. Crane, J. Edwards, R. L. Brinton. Solo.—E. J. Brighton. Passengers.—J. Dugdale-Bradley, N. Crane. High winds throughout the week very considerably restricted flying.

AUSTRALIA.

The Sydney (N.S.W.) Club.

The Sydney section of the Australian Aero Club is rapidly becoming a model Flying Club—not a club which flies models.

The Club started with two loaned Moths which shared the one and only shed with two or three more or less antique privately-owned aircraft. The Club office, workshop, store and canteen were all jumbled together in a corner of this shed.

To-day the Club has its own three Moths and two privately-owned Moths in its own hangar which is capable of holding six machines. Next to the hangar is a new workshop and store. Two petrol pumps have been installed in front of the hangar.

Alongside the Club hangar is a new office specially built by the Club for its staff. A short distance away is the Club House with its two tennis courts.

A new Moth with a Cirrus II engine has been acquired and should have arrived by now.

The Committee has asked the Civil Aviation Department to erect another large hangar suitable for use as a service station and has offered to organise a cheap and efficient service system that will enable the private owner to obtain garage, washing and ordinary maintenance at a moderate weekly charge. In addition to this, the Committee has urged the erection of a compass-swinging base and the establishment of an air route and weather report bureau of information at the aerodrome as well as other improvements to "the Air Port of Sydney."

In the words of the Club Committee, "The transformation in the course of nine months has been remarkable and yet it is only the beginning."

On Apr. 4 the Committee appointed Mr. Claude W. Smyth, who was Assistant-Secretary of the Returned Soldiers' and Sailors' Imperial League in New South Wales, as the new Club Secretary out of a total of 55 applications for the post.

During April Major H. de Havilland flew from Melbourne to Sydney on his Moth. He gave the Club all sorts of information and advice about the Moth and its Cirrus. His machine was very quickly snatched from its owner and has found a permanent home in Sydney. This machine has been purchased by Messrs. Berry and Hammond and will be used on an air-taxi and passenger-carrying service.

It is also reported that the Sydney Sun has purchased a Moth for its own use.

On the occasion of the visit of their Royal Highnesses the Duke and Duchess of York to Sydney, a formation of three Moths, led by Major de Havilland and including two Club Moths, piloted by Messrs. R. M. King and H. W. Ross, D.F.C., flew over the Renown as it steamed into Sydney Harbour.

Report for week ending Feb. 25.

Total flying time 30 hrs. 31 mins., made up of 15 hrs. 57 mins. dual instruction, 3 hrs. 52 mins. pupils solo flying, and 7 hrs. 25 mins. pilot members flying.

Report for week ending Mar. 4.

Total flying time 40 hrs. 27 mins., made up of 24 hrs. 5 mins.

dual instruction, 5 hrs. 35 mins. pupils solo flying, and 8 hrs. 35 mins. pilot members flying.

Report for week ending Mar. 11.

Total flying time 38 hrs. 43 mins., made up of 18 hrs. 53 mins. dual instruction, 11 hrs. 51 mins. pupils solo flying, and 6 hrs. 52 mins. pilot members flying.

Report for week ending Mar. 18.

Total flying time 34 hrs. 50 mins., made up of 17 hrs. 25 mins. dual instruction, 11 hrs. 10 mins. pupils solo flying, and 5 hrs. 40 mins. pilot members flying.

On Mar. 12 Mr. M. Rosenfeld passed the Advanced Training Course and therefore has the distinction of being the first Club-trained pilot to pass this severe test.

Report for week ending Mar. 25.

Total flying time 30 hrs. 58 mins., made up of 6 hrs. 32 mins. dual instruction, 10 hrs. 4 mins. pupils solo flying, and 12 hrs. 1 min. pilot members flying.

On Mar. 21 Mr. Milton C. Kent passed the Advanced Training Course in good style.

On Mar. 23 four Club pupils passed their "A" licence flying tests, this making a total of 16 "A" licences in a little over seven months. In this last batch was Mrs. M. M. Bryant, who is the first woman to gain her pilot's licence in Australia, and Mr. F. R. Mitchell, the Club's Chief Engineer, who will now be in a position to test both the engines and aeroplanes in the air.

Report for week ending Apr. 1.

Total flying time 31 hrs. 26 mins., made up of 10 hrs. 13 mins. dual instruction, 3 hrs. 40 mins. pupils solo flying, and 11 hrs. 45 mins. pilot members flying.

On Apr. 7 Miss E. M. Pollett made a very successful first solo and is thus the second woman in Australia to fly alone.

The Brisbane Flying Club.

During the first month of operations of the Brisbane Flying Club, which is operated by the Queensland and Northern Territory Aerial Services Ltd., a total of 41 hr. 40 min. was put in on one Moth.

Seven pupil members put in 18 hr. 35 min. dual instruction, 96 passengers were carried and 4 hr. 45 min. was occupied in taxi trips and photography.

During the Royal visit, the Moth made a photographic trip from Brisbane to Toowoomba and back on behalf of *The Brisbane Daily Mail*. The return trip with photographs and reports of the visit was made in 55 min., the Moth averaging 85 m.p.h. at a petrol consumption of 22 m.p.g.

A new hangar has been erected for the school and this, beside providing accommodation for two large machines and four Moths, is equipped with an office, workshops, store and a Shell petrol pump.

MOTH USEFULNESS.

The following is an extract from letter received by Mr. M. H. Volk from Mr. O. J. Tapper of the London Aeroplane Club. It was written from Le Mans on June 17:—

On Thursday, a member of the Club, Mr. McClure, asked me if I would like to fly him to Le Mans for the 24 hours' road race, of course I said Yes, so he bought a Moth, and we started next day.

We landed at Crocydon for Customs and again at St. Inglevet on the French coast, from there we proceeded to Dieppe to help the Bentley team through the Customs. At Dieppe we landed on a very decent field, which turned out to be military territory, and we were almost arrested, all our papers, etc., being confiscated. However, everybody was very pleasant and we were allowed to leave on Sunday.

We then flew to Abbeville, where we met my friend's wife, Mrs. McClure, who had brought a Bentley car over with our luggage. Next day we left Abbeville for Le Mans, landing en route in a field for petrol. It was very amusing to watch the villagers rushing up from all points of the compass as we landed. We eventually arrived safely at Le Mans, landing on the parade ground, the crowd being very impressed when we folded the Moth.

On Wednesday I flew a friend to Le Bourget, but I had to land just outside Paris for petrol. Unfortunately I picked the aerodrome of St. Cyr, which is military. I was placed under immediate arrest and kept there for 3½ hours, while they read all the regulations to me, not a word of which I understood! However, eventually I was allowed to proceed and arrived safely at Le Bourget, where I picked up another passenger and flew back. We had a very good journey, except for fog over Paris, which made it rather difficult.

We have carefully worked out the costs of the trip, which are of interest.

By Car (two people).

	£	s.	d.
Petrol, 21 gals ...	1	19	0
Shipping car ...	7	0	0
Boat Tickets ...	1	10	0
Oil ...	4	0	0

£10 13 0

per head ...

£5 6 6

By Moth (two people).

	£	s.	d.
Petrol, 25 gals. ...	2	5	8
Oil ...	4	0	0
Landing fees ...	4	0	0
Taxis, etc. ...	5	0	0

£2 18 8

per head ...

£1 9 4

Note.—Both cheaper than 1st Class rail fare.

AN ERROR IN TRANSCRIPTION.

Owing to an error in transcription (not due to this paper), an advertisement in *THE AEROPLANE* stated that the Medium Power Handicap at Bournemouth Whitsun Meeting was won by an Avian. As stated in the report of the meeting in *THE AEROPLANE* of June 8 this race was in fact won by Mr. F. T. Courtney, on a de Havilland Moth (G-EBOI) belonging to the Hampshire Aeroplane Club.

AN URGE.

Shell-Mex Ltd. some time ago promised the Johannesburg Light Aeroplane Club that if the South African Government assisted the Club financially they would assist with the gift of an aeroplane.

The Government having decided to subsidise the Club the Shell Co. have bought an Avro Avian which is being sent out to South Africa for presentation to the Club.

Slot and Aileron Control.

"The ailerons with slots give full control down to the stalling point, and appear practically to eliminate risk of a serious accident through accidental stalling near the ground."

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 22; Tuesday, 26; Wednesday, 24; Thursday, 26; Friday, 22; Saturday, 29; Sunday, 9.

IMPERIAL AIRWAYS LTD.:

Paris—London; London—Brussels—Cologne: Machines 65, passengers 746, freight 22 tons.

AIR UNION:

Paris—London: Machines 34, passengers 84, freight 14½ tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 24, passengers 125, freight 2 tons.

DEUTSCHE LUFTHANSA AG.:

Berlin—London: Machines 14, passengers 86.

SABENA:

Brussels—London: Machines 13, passengers 54.

PRIVATE:

Machines 4, passengers 1.

Total number of trips by British Machines, 69, carrying 741 passengers. Foreign Machines, 85, carrying 349 passengers.

COMPARATIVE FIGURES.

Week ending June 26:

Machines, 154; Passengers, 1,090; Crews, 253; Total personnel, 1,343.

Corresponding week, 1926:

Machines, 166; Passengers, 984; Crews, 214; Total personnel, 1,198.

Corresponding week, 1925:

Machines, 178; Passengers, 773; Crews, 219; Total personnel, 992.

Corresponding week, 1924:

Machines, 148; Passengers, 585; Crews, 183; Total personnel, 768.

Corresponding week, 1923:

Machines, 131; Passengers, 473; Crews, 218; Total personnel, 691.

Corresponding week, 1922:

Machines, 126; Passengers, 260; Crews, 173; Total personnel, 433.

Corresponding week, 1921:

Machines, 102; Passengers, 381; Crews, 123; Total personnel, 506.

Corresponding week, 1920:

Machines, 113; Passengers, 227; Crews, 134; Total personnel, 355.

Croydon Notes.

The long awaited Fokker F.VIII arrived at Croydon aerodrome on Saturday morning and created a very favourable impression. She follows closely the ordinary Fokker arrangement except that she is driven by two Jupiter engines and has a faster fuselage.

The cabin is the finest thing of its kind yet seen. The effect is that of being in a comfortable room rather than being made to sit in a corridor, which is the effect in most machines. Comfortable and roomy armchairs rather like the old Alhambra stalls are fitted, and the whole effect is one of Dutch roominess and solidity which cannot fail to inspire its occupants with a feeling of safety.

One is told that in the air the engines are remarkably silent. The F.VIII carries 14 passengers, a pilot and navigator, and one gathers that with full load it will climb on one engine. One can easily believe that for does not the Fokker F.VII go up like a rocket with twelve solid Dutchmen aboard driven by only one Jupiter IV?

The Air Union have signed a contract with the *Compagnie Internationale des Grands Express Européens* for the latter to undertake the catering arrangements on the former's aircraft. Thus the Air Union will be able to supply its travellers with hot meals in the air, and with drinks outside the three-mile limit.

A number of passengers on Monday and Tuesday of this week have come over by air from the Continent to see the sun give a creditable imitation of a company director complete with Corona. Six W.ros and Argosies came from Paris fully loaded on Monday and seven machines of Imperial Airways alone were due to leave Croydon for the congested totality belt on Tuesday night.

Almost every private aeroplane in the country seems to be bound for that belt. Personally one would very much rather make for a place where one could see the sun for a prolonged period unobscured.

On Monday Lt.-Col. Minchin was flying the Hampstead (three Jupiters) from Paris to London and when near Biggin Hill the petrol supply to all three engines failed. The machine had been in the air for 2 hours 7 minutes, and the normal petrol capacity is 3½ hours. The right-hand top and bottom wings and the undercarriage were smashed. The machine is not so badly damaged as was at first feared and is repairable.—G. D.

A LONG-DISTANCE PASSENGER FLIGHT.

On June 15, at 08.30 hours, Mr. Van Lear Black, proprietor of *The Baltimore Sun*, left Amsterdam in a Fokker F.VIIa monoplane (450 h.p. Bristol Jupiter engine) belonging to the K.L.M. on a flight to the Dutch East Indies. He was accompanied by his valet and was piloted by Messrs. Geyssendorfer and Scholte. The machine arrived at Budapest at 16.00 hours the same day.

On June 18 it arrived at Aleppo from Constantinople.

On June 19 Baghdad was reached and on the following day the flight was continued to Bander Abbas.

On June 24 the machine arrived at Allahabad from Karachi, having flown by way of the Jodhpur railway from Ajmer to Jhansi in order to avoid the Sind desert.

On June 27 it arrived at Rangoon from Calcutta.

BRITISH AIRCRAFT SELLING ABROAD.

Late last year, Sir Samuel Hoare announced that to increase the sale of British aircraft abroad, the Air Ministry would release for sale all new aircraft as soon after type test as possible, that is as soon as they are transferred from the Secret List to the Part Publication List.

As the result of this improved policy the Fairey Aviation Co., Ltd., of Hayes, Middlesex, have sold a number of the latest Fairey aircraft, the IIF (450 h.p. Napier Lion engines), to the Chilean Government.

This order is the first result of the new regulations and it is much to the credit of the Fairey company that they should have got the order in face of strenuous foreign competition.

It is also satisfactory to know that the British Aircraft Industry can now enter the World's markets with something other than obsolete aircraft. Hitherto Great Britain has had to compete abroad under very unfair conditions, and, as it is, we have sold aircraft abroad more on our reputation for good workmanship and reliability than on high performance.

The acquisition of IIFs by Chile should benefit the whole British Industry in South America. And one hopes that the Air Council will make further efforts to free British enterprise from the bonds of its Technical Experts. One could name one particular machine which has been hanging around Martlesham and elsewhere for over a year, and is built on a new method of construction which is particularly likely to appeal to foreign buyers.—C. G. G.

BRISTOL JUPITERS IN NEW TYPE AIRCRAFT.

Fifteen types of aircraft will be shown in the Fly-Past at the Royal Air Force Display on July 2. No less than eight of these machines will be fitted with the Bristol Jupiter engine, and one with the Bristol Cherub. These machines will be:—The Bristol Bulldog, Day and Night Fighter; the Gloster Gamecock, winner of the Sassoon Cup; the Short Chamois, Army Co-operation; the Handley Page Hinaidi, twin-engined Night Bomber; the Gloster Goring, Day Bomber; the Boulton and Paul Sidestrand, twin-engined Day Bomber; the Vickers Valiant, General Purpose; the Westland Wapiti, General Purpose; the Pterodactyl, Aerodynamic Research.

The Gloster Gamecock machine is included among these machines as the winner of the Sassoon Cup, for single-seat fighter squadrons of the Royal Air Force. In the final for this race three Jupiter-engined Gloster Gamecocks finished first, second and third, and the fifth machine was also fitted with a Jupiter.

PERSONAL NOTICES.

DEATHS.

ALLEN.—On June 13, at Heathfield House, Sea Point, Cape Town, after an operation, Lawrence Edward, the beloved child of Flt. Lt. C. E. H. Allen, D.F.C., R.A.F., and Marion Allen, age 17 months.

HART.—At Old Chaman, India, on June 24, as the result of a flying accident, L.-AC. Alfred Claudius Hart, R.A.F.

SALMOND.—On June 22, at Dundee, as the result of a flying accident, Rawdon Frank Gerald Salmond, Lieut., R.N., and Flg. Off., R.A.F.

Lieut. Salmond was detached from the Navy for duty with the R.A.F. in September, 1926, and posted to the R.A.F. Base, Leuchars, for a course of flying instruction. He had passed the Civil Service Examination for Interpreter.

SLACK.—At Old Chaman, India, on June 24, as the result of a flying accident, Randal Earle Slack, Flg. Off., No. 31 (Army Co-operation) Sqdn., R.A.F.

Mr. Slack joined the R.A.F. with a S.S. comm. in September, 1923. After a course of flying instruction at No. 5 F.T.S., Shotwick, he was posted, in December, 1924, to No. 31 Sqdn. He was promoted to the rank of Flg. Off. in June, 1925.

FORTHCOMING MARRIAGE.

MACLEAN—CAMERON.—The marriage arranged between Sq. Ldr. L. J. MacLean, M.C., R.A.F., and Miss Agnes Patricia Cameron, will take place at St. Adamnan's Church, Duror, Argyll, on July 5.

BIRTHS.

FLETCHER.—On June 23, at a nursing home, Thame, Oxfordshire, to Marjorie, wife of Flt. Lt. A. W. Fletcher, O.B.E., D.F.C., A.F.C., R.A.F.—a son.

STRATFORD-TUKE.—On June 20, at Westgate-on-Sea, to Betty (née Johnstone), wife of Flg. Off. Athol G. Stratford-Tuke, R.A.F.—a son.

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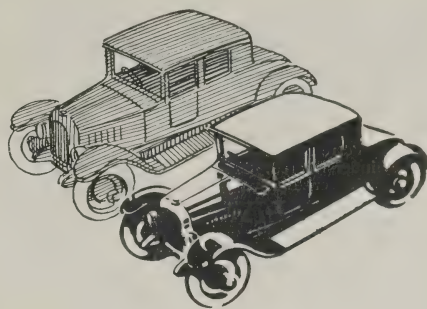
N.B.—The display can be watched from cars in the car park. Tickets for these positions now obtainable from all theatre agencies, libraries, and from the Secretary, R.A.F. Display, Uxbridge.

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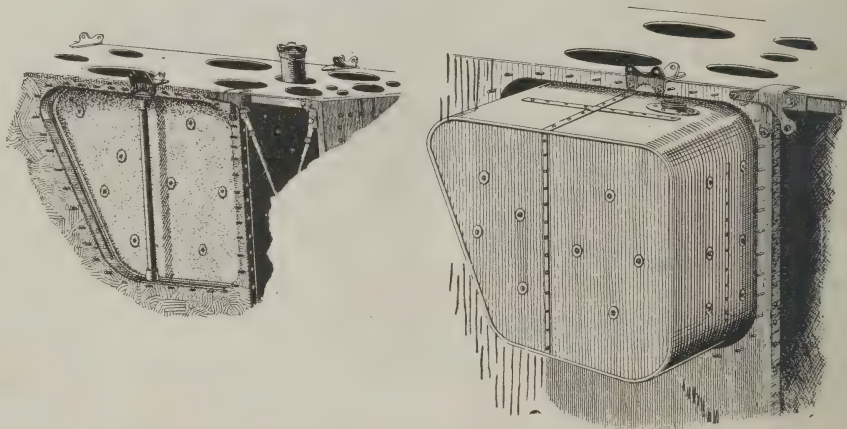
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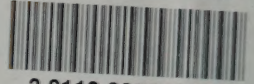
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